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OF A MODEL OF A SUPERSONIC TARGET MISSILE
EMPLOYING AN OFFSET ENGINE NACELLE

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TECHNICAL MEMORANDUM X-670

TRANSONIC STABILITY AND CONTROL CHARACTERISTICS

OF A MODEL OF A SUPERSONIC TARGET MISSILE

EMPLOYING AN OFFSET ENGINE NACELLE*

By Elden S. Cornette

SUMMARY

Force tests of a model of a supersonic target missile were performed in the Langley 8-foot transonic pressure tunnel to determine the stability and control characteristics of the model at transonic speeds. The tests were conducted at Mach numbers from 0.60 to 1.20 over a range of angles of attack and sideslip.

The results of the tests indicated that, although the basic configuration without wings was longitudinally and laterally stable over the range of test variables, the addition of wings caused the model to become longitudinally unstable, with regard to the chosen moment reference center, at Mach numbers below 0.90. The winged configuration exhibited a positive effective-dihedral parameter at the higher Mach numbers but could be made stable by the addition of a small fixed vertical fin mounted on top of the vertically offset engine nacelle.

A pair of all-movable tails mounted with a dihedral angle of -34° provided effective longitudinal, lateral, and directional control throughout the Mach number range for all configurations tested. The addition of a simulated booster rocket produced no large losses in control effectiveness up to a Mach number of 1.00. The ratio of yawing moment to rolling moment produced by differential deflection of the tails was of a magnitude which could present a control problem.

INTRODUCTION

The increased altitude and range capabilities of modern ground-launched defense missile systems have generated a need for more advanced

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high-performance aerial targets for use in evaluating the effectiveness of the defense systems and in training ground launching personnel. The design requirements thus placed on aerial target missiles demand supersonic performance at very high altitudes. In addition, the necessity for operating the target within a limited practice-range area imposes high maneuverability and control requirements. If the target itself is ground launched and ground controlled, it must demonstrate satisfactory stability and control characteristics throughout the transonic speed range.

The purpose of the investigation reported herein was to evaluate the stability and control characteristics at transonic speeds of a model of a supersonic target missile. In addition to a systematic model buildup program, the effects of various configuration modifications were also investigated.

Six-component force data were obtained for Mach numbers from 0.60 to 1.20 over a range of angles of attack and sideslip. Most of the data are presented in tabular form and a brief discussion of the results is presented.

SYMBOLS

The lift, drag, and pitching-moment coefficients presented in this paper are referred to the stability-axis system whereas the rolling-moment, yawing-moment, and side-force coefficients are referred to the body axes. (See fig. 1.) The moment reference point was located on the body center line 25.75 inches (model scale) rearward of the nose of the basic configuration. (See fig. 2.)

A maximum cross-sectional area of cylindrical missile body
(0.0275 sq ft)

c local wing or fin chord in streamwise direction, in.

C_D' drag coefficient, $\frac{\text{Drag}}{qA}$

$C_{D,b}'$ base drag coefficient for missile body, $\frac{\text{Body base drag}}{qA}$

$C_{D,i}'$ internal-drag coefficient, $\frac{\text{Internal drag}}{qA}$

C_L	lift coefficient, $\frac{\text{Lift}}{qA}$
$C_{L,i}$	internal-lift coefficient, $\frac{\text{Internal lift}}{qA}$
$C_{L\alpha}$	lift-curve slope (averaged from $\alpha = -2^\circ$ to 2°), per deg
C_l	rolling-moment coefficient, $\frac{\text{Rolling moment}}{qAL}$
$C_{l\beta}$	effective-dihedral parameter, $\partial C_l / \partial \beta$, per deg
$C_{l\delta_a}$	tail effectiveness in roll, $\partial C_l / \partial \delta_a$, per deg
$C_{n\delta_a}$	yawing-moment coefficient produced by differential deflection of tail fins, $\partial C_n / \partial \delta_a$, per deg
C_m	pitching-moment coefficient, $\frac{\text{Pitching moment}}{qAL}$
$C_m C_L$	static-longitudinal-stability parameter, $\partial C_m / \partial C_L$
$C_{m\delta_e}$	tail effectiveness in pitch, $\partial C_m / \partial \delta_e$, per deg
C_n	yawing-moment coefficient, $\frac{\text{Yawing moment}}{qAL}$
$C_{n\beta}$	static-directional-stability parameter, $\partial C_n / \partial \beta$, per deg
C_Y	side-force coefficient, $\frac{\text{Side force}}{qA}$
$C_{Y\beta}$	static-side-force parameter, $\partial C_Y / \partial \beta$, per deg
L	reference length (approximately $1.05 \times$ basic body length excluding afterbody), 42.22 in.
M	free-stream Mach number

q	free-stream dynamic pressure, lb/sq ft	
r	radius of missile nose, in.	
x	longitudinal distance from leading edge of wing or fin, in.	
x_b	longitudinal distance from missile nose, in.	
y	wing or fin airfoil ordinate, in.	
α	angle of attack, deg	L
β	angle of sideslip, deg	1
δ_a	deflection of right-hand tail fin minus deflection of left-hand tail fin, deg	8
δ_e	deflection of each tail fin when used as pitch control, positive when leading edges are up, deg	0
δ_R	deflection of right-hand tail fin, positive when leading edge is up, deg	5
δ_L	deflection of left-hand tail fin, positive when leading edge is up, deg	

Configuration component designations:

B	basic missile body including nose pressure sensor
A _S	short afterbody closure fairing
A _L	long afterbody closure fairing
W	wing
P	pylon used to mount engine nacelle
N	engine nacelle with sting and balance in missile body and with mass flow through the nacelle
N _B	engine nacelle with sting and balance in nacelle and with nacelle inlet closed with nose cone fairing
F	tail fins (-34° dihedral)

V vertical fin on engine nacelle

T simulated rocket booster

APPARATUS AND PROCEDURES

Tunnel

The investigation was conducted in the Langley 8-foot transonic pressure tunnel, which is a single-return tunnel with a rectangular slotted test section that permits continuous operation through the transonic speed range. During the tests, automatic temperature controls maintained a constant and uniform stagnation temperature of 121° F. The dewpoint of the tunnel air was maintained near 0° F in order to avoid condensation effects.

Model

A three-view drawing of the 0.187-scale model of the target missile is presented in figure 2, and detailed model dimensions are given in table I. A photograph of the model mounted in the Langley 8-foot transonic pressure tunnel is shown in figure 3.

The basic configuration consisted of a relatively long cylindrical body preceded by an ogive-shaped nose with a fineness ratio of approximately 3. A sketch of the missile nose and a table of its coordinates is presented in figure 4. Also shown in figure 4 is a detail sketch of a nose boom pressure sensor which extended ahead of the missile nose during the investigation. A relatively large pylon-mounted engine nacelle was located directly above the rear portion of the body as shown in figure 2. Mass flow through the engine nacelle was simulated for all tests during which the model was mounted in the wind tunnel with the sting support in the body. During a part of the investigation, the model was mounted with the sting and balance in the nacelle and during these tests the nacelle inlet was faired closed with a nose cone having approximately 10° semivertex angle as shown by dashed lines in figure 2. The effects of a small fixed vertical fin mounted on top of the engine nacelle were also investigated. The fin, which had approximately a right triangular planform, was constructed from a 1/16-inch-thick steel plate and employed wedge-shaped leading and trailing edges as shown in figure 2.

Two afterbody closure fairings were investigated while the model was sting mounted from the engine nacelle. The short afterbody (fineness

ratio of 2.04) consisted of a simple conical fairing of 6° semivertex angle terminated in a tangent hemisphere with a radius of 0.73 inch as shown in figure 5. The long afterbody (fineness ratio of 2.98) was an ogive body of revolution having the same fairing and coordinates as the missile nose. These coordinates are given in figure 4.

The wing used on the model had a trapezoidal planform as shown in figure 2. It was mounted along the body center line with 0° incidence and 0° dihedral. The tail fins had a trapezoidal planform and were mounted on the model with -34° dihedral as shown in figure 2. The tail-fin attachments were constructed so that the incidence angle of each individual tail fin could be preset to any of several desired angles. The coordinates of the symmetrical wing and tail-fin airfoil sections are given in table II.

During a portion of the investigation, a simulated booster rocket was mounted below the missile body. The booster was basically a circular cylinder with a blunt nose fairing and with a simulated exhaust nozzle attached to the flat base as shown in figure 2. The exhaust nozzle was canted downward 15° from the horizontal booster center line.

Boundary-layer transition was fixed on the model with the use of approximately 0.2-inch-wide strips of No. 220 carborundum grains. The transition strips were applied along the upper and lower surfaces of the wing, tail fins, and vertical fin approximately 0.25 inch back from the leading edge, around the engine nacelle 0.3 inch from the inlet, and around the cylindrical portion of the booster 0.65 inch from the booster nose.

Tests

The wind-tunnel tests on the model employing a booster were conducted at Mach numbers of 0.60, 0.80, 0.90, and 1.00 while those on the model without booster were conducted at Mach numbers of 0.80, 0.90, 1.00, and 1.20. The various configurations were tested through an angle-of-attack range from -4° to 8° at an angle of sideslip of 0° . Lateral tests were conducted through an angle-of-sideslip range from -3° to 6° at an angle of attack of 0° . Tests were also made with the individual tails deflected to various angles. All tests were conducted at a free-stream stagnation pressure of 1.0 atmosphere. The test Reynolds number based on unit length varied from 3.17×10^6 to 4.22×10^6 over the Mach number range.

Measurements

Six-component static aerodynamic force and moment measurements were obtained by means of an electrical strain-gage balance which was sting-mounted within the missile body during most of the tests. For part of the tests the six-component balance was sting-mounted within the engine nacelle.

The angle of attack and angle of sideslip were determined by means of a gear-driven counter located at the base of the wind-tunnel sting support system.

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Internal flow measurements within the engine nacelle duct were obtained with a pressure-survey rake which consisted of 13 total- and 4 static-pressure probes located in a plane perpendicular to the nacelle center line and just inside the nacelle exit. During the mass-flow tests, the nacelle-inlet total pressure was also measured by means of a single total-pressure probe located just inside the nacelle inlet. The internal-drag and internal-lift increments due to the change in the components of momentum of the flow through the nacelle were computed from the pressure measurements and the results are presented in figure 6. Four different methods of area weighting the individual pressure tubes and integrating over the nacelle exit area were examined. It was found that for these tests a simple arithmetic average of the 13 total-pressure measurements applied to the entire exit area yielded internal-force increments which were almost the same as those obtained from the other methods.

Total and static pressures in the free stream ahead of the missile nose were measured by means of a nose boom probe; the geometrical details of the probe are shown in figure 4. A discussion of missile nose-probe and nacelle-inlet pressure measurements made during the tests is presented in the appendix. Base-pressure measurements were obtained from static-pressure tubes located at the base of the missile body when no afterbody was used and at the base of the engine nacelle when it was faired closed with no internal flow.

Corrections

Corrections due to the internal flow in the engine nacelle duct have been applied to the lift, drag, and pitching-moment coefficients for all data presented on configurations with the nacelle inlet open. The drag data also have been adjusted to the condition of free-stream static pressure acting at the body base when no afterbody was used and at the engine nacelle base when the nacelle inlet was faired closed.

The measured angles of attack and sideslip have been corrected for model-support sting and balance deflections occurring upstream of the angle measurement device as a result of aerodynamic loads on the model.

No corrections for wind-tunnel boundary-reflected disturbances were considered necessary for the Mach numbers at which the tests were conducted.

Accuracies

The accuracy of the data presented for this investigation at a Mach number of 0.80 is estimated to be as follows:

C_L	±0.088
C_D'	±0.015
C_m	±0.006
C_l	±0.001
C_n	±0.003
C_y	±0.058
α , deg	±0.1
β , deg	±0.1
M	±0.002
Total pressure, lb/sq ft	±1.0

RESULTS AND DISCUSSION

The basic force and moment data obtained on the various configurations tested during the model buildup program are presented in table III. No analysis of these data is presented in this paper. Also presented in table III are the data obtained on the complete configuration with tail fins set at incidence angles other than 0° . These data were used to obtain control parameters which are presented in this paper.

The longitudinal and lateral aerodynamic characteristics of the model with and without wings and booster and with the tail fins set at a deflection of 0° are presented in figures 7 to 10. The contribution of the engine-nacelle vertical fin to the lateral characteristics of the winged configuration (shown by the dashed line in figure 10) was obtained from the model buildup tests. The effects of adding two different afterbody closure fairings to the model are shown in figures 11 and 12. These data were obtained with the model mounted in the tunnel with the balance and sting support located in the engine nacelle. The data shown in figures 11 and 12 for the configuration without afterbody

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closure fairing were not corrected to the condition of free-stream static pressure at the body base as is customary. This correction was omitted in this case so that the data would be directly comparable with data for configurations with afterbodies. The addition of the faired afterbodies produced reductions in zero-lift drag from 8 to 15 percent as expected and reduced restoring yawing moments slightly.

Longitudinal Stability and Control

The variation of lift-curve slope and static-longitudinal-stability parameter with Mach number for the model with and without wings and booster is shown in figure 13. The lift-curve slope for the winged configuration followed the usual trend through the transonic speed range. The values of the static-longitudinal-stability parameter shown in figure 13 were evaluated near $C_L = 0$. The basic configuration without wings was statically stable in pitch throughout the Mach number range. It may be noted however that the winged configuration with or without booster was statically unstable at Mach numbers below 0.90 with regard to the chosen moment reference center. Even though the usual rearward shift in aerodynamic center of pressure which occurred between a Mach number of 0.90 and 1.00 made the winged configuration statically stable at the higher Mach numbers, it would be necessary to locate the center of gravity ahead of the chosen moment reference center in order to insure an adequate static margin throughout the Mach number range.

The effectiveness of the all-movable tails in providing pitch control is shown in figure 14 for angles of attack of 0° and 8° . It can be seen that the addition of wings or booster to the configuration produced some reduction in pitch-control effectiveness, but it appears as though the pitch control would be adequate to meet longitudinal trim requirements with reasonable tail deflection angles.

Lateral and Directional Stability

The variation of the lateral-stability derivatives with Mach number is shown in figure 15 for the model with and without wing, booster, and a small fixed vertical fin located on top of the engine nacelle. The negative values of the effective-dihedral parameter $C_{l\beta}$ for the two configurations without wings indicate that these configurations have positive dihedral effect as desired throughout the Mach number range. The addition of wings was considerably destabilizing, however, and caused the model with or without booster to become unstable in roll at the higher Mach numbers. The roll contribution due to a small fixed vertical fin located on top of the engine nacelle was obtained from the configuration buildup tests. Figure 15 indicates that the positive

dihedral effect due to the addition of the vertical fin would make the winged configurations stable in roll, at least for an angle of attack of 0° , throughout the Mach number range of these tests. The variation of the effective-dihedral parameter with angle of attack was not determined during this investigation.

As shown in figure 15, all configurations exhibited positive directional stability and a negative static-side-force parameter throughout the test Mach number range for an angle of attack of 0° .

Lateral and Directional Control

The effectiveness of the differentially deflected tails in producing both roll and yaw is shown in figure 16 for the model with and without wing and booster. Both the lateral- and directional-control-effectiveness parameters were obtained from the same test with $\delta_R = 2^\circ$ and $\delta_L = -2^\circ$ which yielded a differential tail deflection δ_a of 4° . It can be seen that the roll control effectiveness was essentially constant over the Mach number range for the basic configuration without wings or booster. The addition of wings or booster to the basic configuration reduced the roll control effectiveness of the tails at the lower Mach numbers but introduced a variation in effectiveness between the Mach numbers of 0.90 and 1.00. The directional control effectiveness of the tails was largely determined by the dihedral angle of -34° at which they were mounted on the missile body. A consistent increase in directional control effectiveness occurred between the Mach numbers of 0.90 and 1.00 for all configurations.

The ratio of yawing moment to rolling moment produced by differential deflection of the tails is also shown in figure 16. This ratio was of a magnitude throughout the Mach number range which could present a control problem. The ratio might be reduced by reducing the negative dihedral angle at which the tails were mounted on the missile body. Reduction of the negative dihedral angle should produce a reduction in directional control effectiveness while leaving the roll control effectiveness essentially unchanged. However, since a reduction in the negative dihedral angle of the tails might also produce a significant reduction in the static-directional-stability parameter $C_{n\beta}$, this aspect should be carefully investigated.

CONCLUDING REMARKS

Force tests of a model of a supersonic target missile were performed in the Langley 8-foot transonic pressure tunnel to determine

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the stability and control characteristics of the model at transonic speeds. The tests were conducted at Mach numbers from 0.60 to 1.20 over a range of angles of attack and sideslip.

The results of the tests indicated that, although the basic configuration without wings was longitudinally and laterally stable over the range of test variables, the addition of wings caused the model to become longitudinally unstable, with regard to the chosen moment reference center, at Mach numbers below 0.90. The winged configuration exhibited a positive effective-dihedral parameter at the higher Mach numbers but could be made stable by the addition of a small fixed vertical fin mounted on top of the vertically offset engine nacelle.

A pair of all-movable tails mounted with a dihedral angle of -34° provided effective longitudinal, lateral, and directional control throughout the Mach number range for all configurations tested. The addition of a simulated booster rocket produced no large losses in control effectiveness up to a Mach number of 1.00. The ratio of yawing moment to rolling moment produced by differential deflection of the tails was of a magnitude which could present a control problem.

Langley Research Center,
National Aeronautics and Space Administration,
Langley Air Force Base, Va., January 18, 1962.

APPENDIX

MISSILE NOSE PROBE AND NACELLE INLET PRESSURES

Figure 17 presents a comparison of the undisturbed free-stream total pressure with that measured by the missile nose probe and the nacelle inlet probe. It can be seen that the nose probe gave an excellent indication of the free-stream total pressure throughout the angle-of-attack range for Mach numbers of 0.80, 0.90, and 1.00. At a Mach number of 1.20 a uniform loss in total pressure through the nose-probe bow shock is indicated. Normal shock theory at a Mach number of 1.20 yields a total pressure loss of 15.7 lb/sq ft which is approximately that indicated in figure 17 for both the nose probe and nacelle inlet probe. The nacelle inlet probe indicated essentially free-stream total pressure for subsonic Mach numbers and angles of attack below 4° . The loss in total pressure at the nacelle inlet with increasing angle of attack above 4° was probably associated with a loss in ram effect due to the wake of the missile nose at the higher positive angles of attack.

Figure 18 presents the error in Mach number indicated by the missile nose probe as a function of angle of attack. Since the nose probe gave an excellent indication of the free-stream total pressure at subsonic Mach numbers, the error in indicated Mach number was due to the position of the probe static-pressure orifices ahead of the missile nose as shown in figure 4. This position error in static pressure and its variation with Mach number is typical for uncompensated pressure sensors.

The variation in indicated Mach number error with angle of attack as shown in figure 18 indicates that the radial location of the two static-pressure orifices (37.5° from the vertical) was satisfactory for positive pitch compensation over a limited angle-of-attack range. The variation in indicated Mach number with angle of attack at the higher positive angles could probably have been compensated for by a slight reduction in the radial-location angle to relocate the static-pressure orifices nearer to the effective pressure-null point.

TABLE I.- MODEL DIMENSIONS

Basic body:

L	Length (excluding afterbody), in.	40.25
1	Maximum frontal area (excluding wing), sq ft	0.0275
8	Fineness ratio	17.94
0	Base area, sq ft	0.0275
5		

Wing:

Area (to body center line), sq ft	0.5914
Span, in.	13.09
Mean aerodynamic chord, in.	8.15
Aspect ratio	2.0
Tip chord, in.	0.84
Root chord (at body center line), in.	12.17
Taper ratio	0.07
Leading-edge sweep, deg	60
Dihedral, deg	0
Incidence, deg	0

One tail fin:

Area to body center line (in chord plane), sq ft	0.1066
Semispan to body center line, in.	3.87
Tip chord, in.	1.57
Root chord (at body center line), in.	4.88
Taper ratio	0.32
Leading-edge sweep, deg	40.5
Dihedral, deg	-34
Incidence, deg	Variable

TABLE II.- COORDINATES OF SYMMETRICAL WING AND
TAIL-FIN AIRFOIL SECTIONS

x/c	y/c	
	Wing	Tail fin
0.0050	0.0023	0.0039
.0075	.0028	.0047
.0125	.0036	.0060
.0250	.0049	.0082
.0500	.0065	.0110
.0750	.0079	.0133
.1000	.0091	.0150
.1500	.0109	.0184
.2000	.0123	.0207
.2500	.0134	.0224
.3000	.0141	.0237
.3500	.0148	.0245
.4000	.0150	.0250
.4500	.0150	.0247
.5000	.0147	.0242
.5500	.0140	.0232
.6000	.0130	.0217
.6500	.0118	.0196
.7000	.0105	.0173
.7500	.0089	.0148
.8000	.0072	.0120
.8500	.0054	.0089
.9000	.0036	.0061
.9500	.0019	.0031
1.0000	.0001	.0001

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TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS

(a) Configuration B

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D	C_m	C_l	C_n	C_Y	C_D^t, b
$\beta = 0^\circ$										
1.20	884.18	.00	-2.05	-.112	.2845	-.0359	.0001	-.0072	-.0417	.2050
1.20	884.35	.00	.00	-.014	.2730	.0032	-.0001	-.0101	-.0492	.2068
1.20	884.23	.00	.02	.076	.2755	.0045	-.0003	-.0101	-.0245	.2068
1.20	884.18	.00	2.05	.096	.2708	.0451	-.0003	-.0096	-.0407	.2159
1.20	884.35	.00	4.12	.205	.2865	.0890	-.0004	-.0085	-.0315	.2413
1.20	884.18	.00	6.18	.374	.3263	.1368	-.0004	-.0074	-.0232	.2423
1.20	884.27	.00	8.26	.554	.3690	.1913	-.0005	-.0076	-.0169	.2457
1.00	786.63	.00	-2.04	-.088	.2286	-.0295	.0002	-.0057	-.0458	.2045
1.00	786.63	.00	.00	.012	.2264	.0038	.0002	-.0084	-.0522	.1988
1.00	786.71	.00	.02	.084	.2285	.0035	-.0001	-.0078	-.0529	.1994
1.00	786.71	.00	2.05	.126	.2205	.0380	.0001	-.0074	-.0553	.2110
1.00	786.63	.00	4.10	.240	.2249	.0766	.0001	-.0056	-.0580	.2442
1.00	786.60	.00	6.15	.379	.2666	.1200	-.0000	-.0058	-.0342	.2511
1.00	786.71	.00	8.22	.559	.3095	.1705	-.0004	-.0061	-.0266	.2628
.90	713.17	.00	-2.04	-.131	.1866	-.0319	.0003	-.0062	-.0500	.1192
.90	713.17	.00	.00	-.018	.1812	.0032	.0002	-.0084	-.0562	.1164
.90	713.03	.00	.01	.078	.1862	.0038	.0001	-.0084	-.0254	.1164
.90	713.10	.00	2.04	.095	.1817	.0382	.0000	-.0082	-.0604	.1213
.90	713.10	.00	4.09	.207	.2011	.0766	-.0000	-.0077	-.0482	.1283
.90	713.03	.00	6.13	.349	.2290	.1177	-.0001	-.0057	-.0351	.1399
.90	713.10	.00	8.19	.520	.2651	.1657	-.0002	-.0061	-.0254	.1541
.80	625.24	.00	-2.04	-.114	.1901	-.0332	.0002	-.0061	-.0384	.1074
.80	625.21	.00	-.01	-.038	.1829	.0016	.0003	-.0086	-.0444	.1067
.80	625.12	.00	.01	.071	.1886	.0033	.0001	-.0087	-.0277	.1068
.80	625.27	.00	2.03	.057	.1817	.0404	.0001	-.0091	-.0494	.1123
.80	625.21	.00	4.07	.169	.1929	.0774	.0001	-.0079	-.0524	.1260
.80	625.30	.00	6.11	.332	.2284	.1176	-.0000	-.0067	-.0564	.1288
.80	625.12	.00	8.17	.494	.2640	.1636	-.0001	-.0053	-.0423	.1412

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(b) Configuration B + W

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^1	C_m	C_l	C_n	C_Y	$C_{D,b}^1$
$\beta = 0^\circ$										
1.20	883.98	.00	-5.19	-5.558	.8743	-.0479	-.0120	-.0059	-.0326	.2198
1.20	884.23	.00	-2.55	-2.554	.5236	-.0233	-.0135	-.0080	-.0300	.2072
1.20	884.39	.00	.04	.194	.4267	-.0030	-.0123	-.0090	-.0192	.2045
1.20	884.23	.00	.06	.283	.4302	-.0018	-.0125	-.0091	-.0076	.2051
1.20	884.31	.00	2.66	3.118	.5643	.0204	-.0120	-.0083	-.0122	.2187
1.20	884.27	.00	5.35	6.339	.9975	.0499	-.0115	-.0057	-.0077	.2289
1.20	884.23	.00	8.03	9.478	1.7130	.0906	-.0080	-.0049	-.0141	.2293
1.20	884.31	.00	10.70	12.442	2.6959	.1515	-.0052	-.0049	-.0095	.2491
1.00	786.89	.00	-5.17	-6.230	.8767	-.0430	-.0105	-.0053	-.0452	.1876
1.00	786.85	.00	-5.16	-6.161	.8683	-.0425	-.0101	-.0047	-.0446	.1882
1.00	786.97	.00	-2.53	-2.767	.4857	-.0216	-.0106	-.0065	-.0389	.1843
1.00	786.74	.00	-2.52	-2.767	.4853	-.0208	-.0108	-.0065	-.0393	.1843
1.00	786.78	.00	.04	.227	.3957	-.0033	-.0104	-.0074	-.0276	.1800
1.00	786.97	.00	.05	.270	.3959	-.0030	-.0102	-.0068	-.0272	.1793
1.00	786.85	.00	.08	.414	.4007	-.0020	-.0103	-.0077	-.0005	.1806
1.00	786.82	.00	2.64	3.452	.5341	.0180	-.0136	-.0072	-.0252	.1901
1.00	786.93	.00	5.32	7.063	1.0159	.0480	-.0129	-.0056	-.0064	.1811
1.00	786.78	.00	8.02	10.655	1.8294	.0911	-.0107	-.0041	-.0161	.1763
1.00	786.74	.00	10.70	14.026	2.9444	.1438	-.0095	-.0041	.0016	.1985
.90	713.30	.00	-4.97	-5.416	.7013	-.1104	-.0106	-.0035	-.0557	.1238
.90	713.20	.00	-2.43	-2.409	.3749	-.0537	-.0101	-.0066	-.0276	.1156
.90	713.37	.00	.04	.231	.3011	.0005	-.0091	-.0082	-.0264	.1135
.90	713.23	.00	.04	.248	.3011	.0006	-.0095	-.0082	-.0273	.1136
.90	713.37	.00	2.53	3.016	.4181	.0556	-.0116	-.0083	-.0289	.1184
.90	713.23	.00	5.11	6.298	.8371	.1208	-.0105	-.0054	-.0140	.1245
.90	713.43	.00	7.77	9.929	1.6027	.1836	-.0098	-.0050	-.0083	.1337
.90	713.40	.00	10.42	13.527	2.7088	.2507	-.0078	-.0047	-.0021	.1467
.80	625.36	.00	-4.76	-4.841	.6442	-.1161	-.0101	-.0049	-.0380	.1112
.80	625.24	.00	-2.34	-2.125	.3649	-.0552	-.0092	-.0071	-.0338	.1050
.80	625.27	.00	.03	.208	.3054	.0002	-.0089	-.0103	-.0279	.1035
.80	625.24	.00	.04	.263	.3072	.0015	-.0095	-.0085	-.0278	.1035
.80	625.36	.00	2.42	2.668	.4052	.0583	-.0109	-.0089	-.0164	.1058
.80	625.21	.00	4.88	5.558	.7525	.1299	-.0104	-.0066	-.0255	.1120
.80	625.24	.00	6.75	9.021	1.2778	-1.0564	-.0089	-.0238	.1158	.1198
.80	625.39	.00	7.39	8.772	1.3977	.2086	-.0096	-.0048	.0149	.1196
.80	625.21	.00	9.90	11.829	2.2947	.2991	-.0082	-.0048	-.0002	.1292
$\alpha = 0^\circ$										
1.20	884.10	-3.06	.00	-.088	.4399	.0013	-.0108	.0520	.1496	.2097
1.20	883.89	.00	.00	-.155	.4282	-.0039	-.0074	-.0031	.0118	.2045
1.20	884.23	.00	.00	-.143	.4300	-.0045	-.0072	-.0039	-.0018	.2052
1.20	884.14	3.07	.00	-.110	.4321	-.0029	-.0026	-.0652	.1450	.2212
1.20	884.23	6.16	.00	-.011	.4389	.0010	-.0033	-.1333	-.3717	.2431
1.00	786.63	-3.05	.00	-.091	.3951	-.0046	-.0164	.0452	.1628	.1910
1.00	786.85	.00	.00	-.198	.3885	-.0106	-.0112	-.0034	.0089	.1806
1.00	786.93	.00	.00	-.226	.3892	-.0108	-.0115	-.0033	.0088	.1800
1.00	786.74	3.06	.00	-.196	.3856	-.0061	-.0044	-.0546	-.1751	.1981
1.00	786.67	6.13	.00	-.073	.3915	-.0007	-.0028	-.1169	-.3829	.2279
.90	713.10	-3.05	.00	-.105	.3050	-.0076	-.0151	.0470	.1499	.1172
.90	713.13	.00	.00	-.158	.2984	-.0121	-.0104	-.0032	.0134	.1121
.90	713.06	.00	.00	-.206	.3022	-.0124	-.0101	-.0032	-.0017	.1122
.90	712.93	3.05	.00	-.152	.2954	-.0070	-.0034	-.0569	-.1399	.1222
.90	713.00	6.11	.00	-.095	.3034	-.0009	-.0021	-.1148	-.3578	.1429
.80	625.00	-3.04	.00	-.069	.3123	-.0064	-.0147	.0477	.1507	.1068
.80	625.15	.00	.00	-.183	.3033	-.0118	-.0096	-.0037	.0190	.1027
.80	624.94	.00	.00	-.202	.3097	-.0130	-.0096	-.0029	.0018	.1027
.80	625.09	3.04	.00	-.211	.3002	-.0092	-.0025	-.0563	-.1301	.1116
.80	625.00	6.10	.00	-.110	.3099	-.0010	-.0008	-.1148	-.3528	.1304

TABLE III.-- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(c) Configuration B + W + F

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^t	C_m	C_l	C_n	C_Y	$C_{D,b}^t$
$\beta = 0^\circ; \delta_L = \delta_R = 0^\circ$										
1.20	891.13	.00	-5.21	-6.033	.9919	.0466	-.0096	.0056	-.0635	.2163
1.20	891.58	.00	-2.56	-2.748	.6051	.0190	-.0097	.0096	-.0970	.2066
1.20	891.42	.00	.04	.326	.5085	-.0382	-.0074	.0091	-.0949	.2000
1.20	891.71	.00	.05	.402	.5071	-.0384	-.0077	.0083	-.0970	.1994
1.20	891.38	.00	2.69	3.695	.6791	-.1068	-.0069	.0094	-.0594	.2164
1.20	891.33	.00	5.40	7.471	1.1921	-.1900	-.0067	.0110	-.0654	.2389
1.20	891.38	.00	8.12	11.179	2.0447	-.2826	-.0040	.0111	-.0491	.2472
1.20	891.42	.00	9.05	12.435	2.4190	-.3127	-.0032	.0091	-.0419	.2545
1.00	793.25	.00	-5.20	-6.559	.9837	.0224	-.0077	.0052	-.0538	.1663
1.00	793.36	.00	-2.54	-2.982	.5638	.0184	-.0073	.0068	-.0783	.1700
1.00	793.22	.00	.04	.275	.4746	-.0202	-.0058	.0071	-.0916	.1657
1.00	793.10	.00	.06	.403	.4731	-.0201	-.0062	.0053	-.0953	.1651
1.00	793.40	.00	2.66	3.847	.6357	-.0672	-.0070	.0098	-.0816	.1699
1.00	793.29	.00	5.38	7.893	1.1819	-.1199	-.0071	.0112	-.0719	.1656
1.00	793.07	.00	8.11	12.048	2.1270	-.1987	-.0059	.0097	-.0593	.1806
1.00	793.07	.00	10.82	16.073	3.4471	-.2898	-.0045	.0043	-.0485	.2107
.90	719.10	.00	-5.00	-5.819	.7700	-.0445	-.0101	.0016	-.0818	.1206
.90	719.03	.00	-2.45	-2.637	.4160	-.0093	-.0076	.0015	-.0800	.1111
.90	719.10	.00	.03	.191	.3359	-.0014	-.0056	.0011	-.0747	.1098
.90	719.20	.00	.06	.332	.3376	-.0013	-.0057	.0017	-.0757	.1091
.90	719.17	.00	2.55	3.271	.4707	-.0006	-.0067	.0027	-.0757	.1118
.90	719.17	.00	5.15	6.863	.9251	-.0021	-.0065	.0054	-.0798	.1220
.90	719.27	.00	7.82	10.895	1.7681	-.0131	-.0059	.0053	-.0607	.1340
.90	719.20	.00	10.50	14.951	3.0088	-.0434	-.0043	-.0001	-.0468	.1491
.80	630.53	.00	-4.80	-5.240	.7098	-.0566	-.0082	.0003	-.0837	.1111
.80	630.59	.00	-2.35	-2.314	.4061	-.0164	-.0070	.0001	-.0782	.1009
.80	630.62	.00	.03	.201	.3433	-.0036	-.0055	.0004	-.0659	.1010
.80	630.56	.00	.04	.272	.3438	-.0041	-.0059	.0002	-.0856	.1002
.80	630.68	.00	2.43	2.930	.4555	-.0059	-.0064	.0013	-.0596	.1025
.80	630.68	.00	4.91	6.141	.8376	-.0196	-.0062	.0045	-.0840	.1103
.80	630.62	.00	7.44	9.693	1.5428	-.0274	-.0062	.0044	-.0670	.1194
.80	630.56	.00	9.99	13.259	2.5754	-.0309	-.0036	-.0007	-.0339	.1313
$\alpha = 0^\circ; \delta_L = \delta_R = 0^\circ$										
1.20	891.33	-3.08	.00	.018	.5224	-.0201	-.0308	-.0073	.3817	.2069
1.20	891.42	.01	.00	-.093	.5112	-.0229	-.0061	.0025	-.0702	.2017
1.20	891.67	.01	.00	-.067	.5120	-.0233	-.0062	.0025	-.0576	.2005
1.20	891.46	3.11	.00	-.094	.5135	-.0168	.0204	.0074	-.5255	.2166
1.20	891.67	6.22	.00	-.046	.4995	-.0039	.0431	.0070	-1.0459	.2594
1.00	793.10	-3.06	.00	-.035	.4710	-.0095	-.0316	.0052	.3020	.1786
1.00	793.07	.02	.00	-.132	.4742	-.0162	-.0095	.0060	-.0952	.1651
1.00	792.85	.02	.00	-.147	.4766	-.0170	-.0091	.0075	-.0929	.1645
1.00	792.88	3.10	.00	-.184	.4652	-.0074	.0164	.0059	.5139	.1792
1.00	792.81	6.18	.00	-.157	.4397	-.0012	.0381	-.0026	.9696	.2294
.90	718.70	-3.04	.00	-.095	.3368	.0016	-.0295	.0094	.2620	.1162
.90	718.56	.02	.00	-.197	.3375	-.0057	-.0088	.0044	-.1048	.1099
.90	718.43	.02	.00	-.181	.3386	-.0056	-.0092	.0044	-.1057	.1106
.90	718.66	3.08	.00	-.227	.3310	.0025	.0148	-.0031	.4708	.1184
.90	718.33	6.16	.00	-.174	.3077	.0062	.0351	-.0175	.8985	.1525
.80	630.06	-3.05	.00	-.062	.3430	-.0026	-.0289	.0127	.2544	.1075
.80	630.06	.02	.00	-.225	.3401	-.0093	-.0090	.0058	-.1166	.1019
.80	630.18	.02	.00	-.225	.3442	-.0093	-.0085	.0021	-.1194	.1019
.80	630.15	3.07	.00	-.216	.3349	-.0035	.0144	-.0060	-.4707	.1091
.80	630.15	6.14	.00	-.202	.3278	-.0014	.0340	-.0216	-.8715	.1285

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(d) Configuration B + F

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^1	C_m	C_l	C_n	C_Y	$C_{D,b}^1$
$\beta = 0^\circ; \delta_L = \delta_R = 0^\circ$										
1.20	882.19	.00	-4.12	-1.037	.4189	.1281	.0027	.0090	-.0768	.2408
1.20	882.27	.00	-2.07	-.503	.3716	.0513	.0040	.0091	-.0870	.2164
1.20	882.27	.00	-.00	.122	.3592	-.0296	.0049	.0083	-.0995	.2050
1.20	882.23	.00	.02	.186	.3633	-.0305	.0049	.0082	-.1001	.2050
1.20	882.23	.00	2.07	.787	.3924	-.1170	.0055	.0088	-.0979	.2107
1.20	882.23	.00	4.15	1.514	.4778	-.2127	.0059	.0109	-.0949	.2367
1.20	882.23	.00	6.25	2.317	.6266	-.3140	.0051	.0110	-.0705	.2537
1.20	882.36	.00	8.35	3.106	.8258	-.4045	.0048	.0106	-.0596	.2657
1.00	784.86	.00	-4.11	-1.175	.3724	.1607	.0026	.0089	-.0895	.2486
1.00	785.01	.00	-2.06	-.571	.3247	.0751	.0036	.0077	-.0887	.2173
1.00	785.01	.00	-.00	.077	.3150	-.0132	.0049	.0069	-.1016	.2077
1.00	785.01	.00	.01	.107	.3149	-.0153	.0045	.0076	-.1018	.2025
1.00	785.08	.00	2.07	.755	.3424	-.1058	.0055	.0091	-.1127	.2049
1.00	785.12	.00	4.13	1.475	.4167	-.2042	.0056	.0119	-.1094	.2349
1.00	785.04	.00	6.22	2.325	.5606	-.3192	.0050	.0113	-.0961	.2613
1.00	784.89	.00	8.31	3.206	.7696	-.4264	.0042	.0093	-.0708	.2871
.90	711.66	.00	-4.10	-1.041	.2695	.1228	.0023	.0069	-.0849	.1442
.90	711.59	.00	-2.05	-.533	.2380	.0592	.0032	.0039	-.0866	.1152
.90	711.79	.00	-.00	.006	.2264	.0008	.0037	.0033	-.1035	.1116
.90	711.69	.00	.01	.085	.2290	.0005	.0038	.0031	-.1044	.1124
.90	711.66	.00	2.06	.578	.2440	-.0657	.0045	.0042	-.1018	.1130
.90	711.52	.00	4.12	1.230	.3007	-.1392	.0049	.0082	-.0984	.1307
.90	711.66	.00	6.19	1.991	.4132	-.2312	.0048	.0093	-.0819	.1416
.90	711.86	.00	8.27	2.775	.5944	-.3246	.0045	.0077	-.0847	.1523
.80	623.86	.00	-4.09	-.947	.2663	.1035	.0022	.0050	-.0815	.1336
.80	623.97	.00	-2.04	-.497	.2380	.0511	.0031	.0030	-.1011	.1052
.80	624.00	.00	-.00	.027	.2293	-.0008	.0038	.0019	-.1023	.1020
.80	623.95	.00	.01	.063	.2331	-.0015	.0039	.0037	-.1006	.1021
.80	623.97	.00	2.05	.551	.2445	-.0594	.0045	.0036	-.1003	.1036
.80	623.97	.00	4.10	1.112	.2915	-.1215	.0047	.0060	-.0985	.1197
.80	624.12	.00	6.16	1.796	.3982	-.1943	.0042	.0071	-.0996	.1291
.80	623.95	.00	8.22	2.476	.5635	-.2709	.0031	.0066	-.0665	.1397
$\alpha = 0^\circ; \delta_L = \delta_R = 0^\circ$										
1.20	882.19	-3.08	.00	.067	.3659	-.0130	-.0192	-.0042	.3794	.2102
1.20	882.11	.02	.00	.020	.3560	-.0094	.0024	.0065	-.0802	.2050
1.20	882.23	.02	.00	.033	.3579	-.0106	.0023	.0071	-.0797	.2044
1.20	882.27	3.11	.00	-.014	.3477	-.0070	.0247	.0143	-.5586	.2292
1.20	882.31	6.21	.00	-.065	.3486	-.0020	.0478	.0127	-1.0702	.2638
1.00	784.86	-3.06	.00	.004	.3061	.0053	-.0167	.0037	.3108	.2181
1.00	784.89	.01	.00	-.038	.3107	.0027	.0029	.0090	-.1031	.2064
1.00	784.86	.02	.00	.018	.3127	.0031	.0028	.0096	-.1180	.2057
1.00	784.89	3.08	.00	-.066	.3026	.0047	.0225	.0150	-.5498	.2259
1.00	784.86	6.18	.00	-.082	.2837	.0046	.0433	.0065	-1.0229	.2661
.90	711.52	-3.05	.00	-.039	.2152	.0148	-.0146	.0133	.2453	.1203
.90	711.56	.02	.00	-.043	.2221	.0113	.0025	.0067	-.1350	.1110
.90	711.66	.02	.00	-.075	.2167	.0128	.0025	.0077	-.1176	.1109
.90	711.69	3.08	.00	-.113	.2108	.0167	.0200	.0013	-.4970	.1224
.90	711.56	6.17	.00	-.119	.1926	.0133	.0384	-.0123	-.9362	.1568
.80	624.00	-3.04	.00	-.013	.2225	.0103	-.0142	.0145	.2096	.1053
.80	623.86	.02	.00	-.030	.2255	.0092	.0023	.0057	-.1566	.1021
.80	624.06	.02	-.00	-.046	.2187	.0082	.0023	.0078	-.1174	.1004
.80	623.95	3.07	.00	-.084	.2164	.0108	.0194	-.0010	-.5013	.1070
.80	624.09	6.14	.00	-.119	.1958	.0086	.0366	-.0156	-.9083	.1420

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(e) Configuration B + P + N

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^1	C_m	C_l	C_n	C_Y	$C_{D,b}^1$
$\beta = 0^\circ$										
1.20	879.65	.00	-4.11	-.293	.7861	-.0788	-.0083	-.0005	-.1390	.2709
1.20	879.57	.00	-2.04	-.202	.7746	-.0318	-.0091	-.0055	-.1635	.2448
1.20	879.61	.00	.05	-.023	.7591	.0139	-.0079	-.0061	-.1812	.2525
1.20	879.70	.00	.05	-.024	.7575	.0146	-.0076	-.0055	-.1800	.2525
1.20	879.70	.00	2.12	.143	.7666	.0615	-.0057	-.0032	-.1544	.2667
1.20	879.70	.00	4.21	.359	.7955	.1068	-.0044	-.0004	-.1430	.2858
1.20	879.70	.00	6.32	.611	.8416	.1550	-.0035	.0010	-.1210	.2872
1.20	879.70	.00	8.43	.896	.9206	.2082	-.0031	.0011	-.1154	.2876
1.00	782.64	.00	-4.11	-.265	.6715	-.1088	-.0063	-.0020	-.1365	.2389
1.00	782.68	.00	-2.04	-.120	.6641	-.0588	-.0075	-.0069	-.1642	.2380
1.00	782.57	.00	.02	.023	.6464	-.0124	-.0056	-.0112	-.1560	.2272
1.00	782.60	.00	.03	.037	.6553	-.0108	-.0057	-.0104	-.1408	.2363
1.00	782.60	.00	2.10	.165	.6783	.0392	-.0042	-.0116	-.1454	.2452
1.00	782.60	.00	4.18	.365	.6931	.0851	-.0026	-.0084	-.1165	.2649
1.00	782.53	.00	6.26	.592	.7313	.1343	-.0017	-.0059	-.0902	.2808
1.00	782.71	.00	8.35	.798	.8004	.1932	-.0012	-.0070	-.0686	.3033
.90	709.41	.00	-4.09	-.232	.3898	-.1079	-.0073	-.0014	-.1520	.1096
.90	709.41	.00	-2.05	-.181	.3782	-.0627	-.0075	-.0077	-.1792	.0997
.90	709.48	.00	.01	-.052	.3660	-.0144	-.0059	-.0114	-.1531	.1063
.90	709.34	.00	.02	-.005	.3676	-.0141	-.0058	-.0098	-.1519	.1063
.90	709.38	.00	2.07	.092	.3684	.0340	-.0041	-.0111	-.1393	.1177
.90	709.31	.00	4.14	.266	.3912	.0842	-.0028	-.0083	-.1244	.1304
.90	709.38	.00	6.20	.474	.4255	.1279	-.0021	-.0047	-.0936	.1456
.90	709.24	.00	8.29	.690	.4809	.1878	-.0014	-.0060	-.0852	.1592
.80	621.77	.00	-4.09	-.265	.3763	-.0992	-.0082	-.0004	-.1549	.1111
.80	621.83	.00	-2.05	-.234	.3688	-.0574	-.0079	-.0057	-.1821	.0990
.80	621.71	.00	.01	-.096	.3541	-.0101	-.0067	-.0101	-.1714	.1024
.80	621.71	.00	.02	.030	.3588	-.0093	-.0067	-.0103	-.1730	.1032
.80	621.83	.00	2.06	.060	.3548	.0363	-.0042	-.0108	-.1549	.1113
.80	621.80	.00	4.12	.234	.3746	.0810	-.0028	-.0076	-.1185	.1242
.80	621.77	.00	6.18	.443	.4089	.1278	-.0017	-.0045	-.0831	.1368
.80	621.83	.00	8.25	.666	.4620	.1814	-.0013	-.0052	-.0718	.1483
$\alpha = 0^\circ$										
1.20	877.24	-3.31	.00	-.020	.7805	-.0000	.0652	.0519	1.3432	.2549
1.20	877.41	-.01	.00	.007	.7731	.0051	-.0013	-.0076	.0254	.2485
1.20	877.45	-.01	.00	.033	.7705	.0066	-.0015	-.0076	.0378	.2479
1.20	877.49	3.31	.00	.040	.7674	-.0008	-.0094	-.0649	-1.3294	.2711
1.20	877.37	6.64	.00	.172	.7856	-.0266	-.1429	-.1199	-2.8126	.3025
1.00	780.57	-3.27	.00	.060	.6777	-.0201	.0597	.0589	1.2810	.2578
1.00	780.72	-3.26	.00	.061	.6453	-.0270	.0592	.0602	1.2670	.2395
1.00	780.64	-.01	.00	.128	.6573	-.0190	-.0017	-.0018	.0360	.2323
1.00	780.49	-.00	.00	.099	.6500	-.0208	-.0016	-.0018	.0218	.2265
1.00	780.72	3.26	.00	.128	.6221	-.0269	-.0638	-.0673	-1.2724	.2577
1.00	780.68	6.55	-.00	.239	.5752	-.0486	-.1285	-.1431	-2.6121	.3126
.90	707.73	-3.23	.00	.103	.3647	-.0260	.0544	.0650	1.1816	.1108
.90	707.73	-.01	.00	.127	.3676	-.0239	-.0014	-.0029	.0403	.1022
.90	707.73	-.01	.00	.111	.3677	-.0223	-.0018	-.0020	.0406	.1022
.90	707.70	3.22	.00	.123	.3479	-.0262	-.0590	-.0718	-1.1368	.1324
.90	707.83	6.47	.00	.158	.3277	-.0402	-.1192	-.1439	-2.4032	.1691
.80	620.48	-3.19	.00	.085	.3516	-.0198	.0540	.0589	1.1889	.1100
.80	620.48	-.01	.00	.108	.3546	-.0171	-.0018	-.0022	.0469	.0985
.80	620.51	-.01	.00	.109	.3536	-.0190	-.0018	-.0012	.0665	.0993
.80	620.51	3.19	.00	.133	.3345	-.0180	-.0577	-.0645	-1.1145	.1289
.80	620.45	6.39	.00	.165	.3205	-.0338	-.1166	-.1281	-2.3381	.1617

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(f) Configuration B + W + P + N

M	q_s , lb/sq ft	β , deg	α , deg	C_L	C_D^*	C_m	C_z	C_n	C_Y	$C_{D,b}^*$
$\beta = 0^\circ$										
1.20	885.52	.00	-5.58	-7.460	1.7521	-.0585	-.0129	-.0006	-.1140	.2536
1.20	885.64	.00	-2.94	-4.581	1.2174	-.0253	-.0138	-.0040	-.1516	.2522
1.20	885.47	.00	-.36	-1.905	.9468	-.0004	-.0134	-.0045	-.1808	.2646
1.20	885.56	.00	-.34	-1.868	.9421	.0012	-.0136	-.0039	-.1811	.2646
1.20	885.64	.00	10.30	9.811	2.4595	.2246	-.0068	-.0034	-.0650	.3056
1.20	885.56	.00	2.21	.731	.9112	.0370	-.0124	-.0004	-.1405	.2684
1.20	885.47	.00	4.89	3.687	1.1270	.0888	-.0128	-.0034	-.0980	.2700
1.20	885.64	.00	7.59	6.747	1.6315	.1595	-.0096	.0074	-.0897	.2845
1.00	787.82	.00	-5.55	-8.088	1.6028	-.0962	-.0118	.0015	-.1385	.2214
1.00	787.74	.00	-2.88	-4.575	1.0137	-.0754	-.0103	-.0042	-.1919	.2092
1.00	787.78	.00	-.29	-1.453	.7783	-.0611	-.0099	-.0078	-.1696	.2114
1.00	787.93	.00	-.25	-1.326	.7638	-.0618	-.0100	-.0081	-.1712	.2056
1.00	787.85	.00	-.24	-1.283	.7734	-.0600	-.0099	-.0066	-.1555	.2101
1.00	787.93	.00	10.18	10.935	2.4380	.1232	-.0062	-.0000	-.0347	.2781
1.00	787.74	.00	2.27	1.332	.7669	-.0279	-.0100	-.0071	-.1135	.2158
1.00	787.78	.00	4.89	4.569	.9919	.0038	-.0107	-.0039	-.0825	.2152
1.00	787.74	.00	7.56	7.951	1.5842	.0496	-.0084	.0005	-.0429	.2423
.90	714.34	.00	-5.28	-7.083	1.1775	-.1714	-.0129	.0014	-.1452	.1150
.90	714.30	.00	-2.71	-3.999	.6901	-.1121	-.0105	-.0042	-.2017	.1090
.90	714.51	.00	-.22	-1.295	.4990	-.0555	-.0088	-.0067	-.1689	.1119
.90	714.34	.00	-.19	-1.139	.4983	-.0519	-.0090	-.0062	-.1707	.1120
.90	714.41	.00	2.24	1.198	.4932	.0055	-.0100	-.0060	-.1209	.1218
.90	714.47	.00	4.78	4.200	.7274	.0649	-.0112	-.0033	-.0952	.1237
.90	714.54	.00	7.38	7.486	1.2640	.1289	-.0104	.0012	-.0643	.1286
.90	714.44	.00	9.97	10.663	2.0764	.2033	-.0078	.0001	-.0523	.1377
.80	626.35	.00	-5.00	-6.202	1.0450	-.1801	-.0124	.0029	-.2022	.1118
.80	626.24	.00	-2.54	-3.450	.6407	-.1091	-.0108	-.0013	-.2000	.1056
.80	626.33	.00	-.16	-1.087	.4862	-.0484	-.0098	-.0056	-.1949	.1057
.80	626.24	.00	-.13	-.928	.4888	-.0445	-.0089	-.0059	-.1957	.1049
.80	626.27	.00	2.21	1.175	.4827	.0154	-.0102	-.0056	-.1510	.1130
.80	626.21	.00	4.64	3.899	.6887	.0804	-.0115	-.0028	-.1101	.1167
.80	626.38	.00	7.13	6.806	1.1501	.1562	-.0097	.0014	-.0799	.1219
.80	626.27	.00	9.63	9.818	1.8823	.2464	-.0071	.0016	-.0560	.1307
$\alpha = 0^\circ$										
1.20	885.39	-3.38	.00	-1.925	.9768	-.0413	.0047	.0232	1.7959	.2641
1.20	885.43	.00	.00	-2.222	.9470	-.0014	-.0069	-.0085	.0119	.2635
1.20	885.52	.01	.00	-2.234	.9512	-.0015	-.0077	-.0092	-.0160	.2635
1.20	885.47	3.40	.00	-1.985	.9395	-.0443	-.0204	-.0377	-1.8168	.2687
1.20	885.39	6.82	.00	-1.130	.9346	-.1853	-.0504	-.0444	-3.8529	.2911
1.00	788.04	-3.34	.00	-1.643	.7464	-.0907	-.0063	.0534	1.6678	.1920
1.00	787.93	.00	.00	-1.836	.7467	-.0733	-.0122	-.0039	-.0045	.1972
1.00	787.78	.00	.00	-1.793	.7434	-.0722	-.0121	-.0031	.0104	.1888
1.00	787.74	.00	.00	-1.808	.7552	-.0716	-.0120	-.0046	-.0055	.1972
1.00	787.78	3.34	.00	-1.768	.7078	-.0836	-.0162	-.0069	-1.6865	.2218
1.00	787.89	6.73	.00	-8.60	.6801	-.1984	-.0257	-.1122	-3.5937	.2340
.90	714.47	-3.29	.00	-1.362	.5110	-.0883	-.0005	.0541	1.5152	.1112
.90	714.34	.00	.00	-1.636	.4911	-.0675	-.0102	-.0034	.0131	.1105
.90	714.14	.00	.00	-1.622	.4939	-.0675	-.0100	-.0036	-.0030	.1098
.90	714.30	3.28	.00	-1.478	.4654	-.0882	-.0188	-.0065	-1.5225	.1112
.90	714.37	6.58	.00	-.914	.4142	-.1572	-.0358	-.1241	-3.1234	.1298
.80	626.06	-3.24	.00	-1.147	.4970	-.0803	.0052	.0460	1.4213	.1058
.80	626.06	-.01	.00	-1.405	.4755	-.0598	-.0091	-.0021	.0157	.1041
.80	626.03	.00	.00	-1.405	.4807	-.0608	-.0093	-.0031	-.0040	.1050
.80	625.94	3.24	.00	-1.300	.4465	-.0789	-.0234	-.0521	-1.4724	.1058
.80	626.09	6.47	.00	-.799	.4073	-.1355	-.0444	-.1041	-2.9482	.1237

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(g) Configuration B + W + P + N + V

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D'	C_m	C_l	C_n	C_Y	$C_{D,b}'$
$\alpha = 0^\circ$										
1.20	874.67	-3.40	.00	-1.868	.9863	-.0286	.0213	-.0147	1.9880	.2662
1.20	874.67	.01	.00	-2.183	.9573	-.0004	-.0081	-.0093	.0219	*2662
1.20	874.62	.01	.00	-2.184	.9595	.0002	-.0082	-.0093	.0084	*2656
1.20	874.62	3.41	.00	-1.931	.9446	-.0333	-.0382	-.0025	-1.9951	*2749
1.20	874.62	6.85	.00	-1.182	.9336	-.1445	-.0803	.0177	-4.1695	*3005
1.00	777.94	-3.36	.00	-1.649	.7735	-.0722	.0123	.0144	1.8895	.2102
1.00	778.05	-.01	.00	-1.829	.7768	-.0680	-.0126	-.0036	.0389	*2193
1.00	777.72	-.01	.00	-1.802	.7951	-.0640	-.0125	-.0036	.0385	*2286
1.00	777.91	3.35	.00	-1.735	.7297	-.0674	-.0356	-.0235	-1.8394	*2377
1.00	777.94	6.74	.00	-.939	.6825	-.1551	-.0628	-.0401	-3.9606	*2436
.90	705.19	-3.29	.00	-1.343	.5085	-.0814	.0144	.0256	1.6624	.1141
.90	705.05	-.01	.00	-1.593	.4950	-.0665	-.0097	-.0043	.0455	*1120
.90	705.02	.00	.00	-1.593	.4996	-.0674	-.0101	-.0052	.0277	*1127
.90	705.05	3.30	.00	-1.457	.4507	-.0804	-.0334	-.0337	-1.6725	*1264
.90	704.99	6.60	.00	-.919	.4010	-.1249	-.0676	-.0668	-3.4988	*1344
.80	617.89	-3.24	.00	-1.132	.4963	-.0724	.0179	.0221	1.6051	.1088
.80	617.89	.00	.00	-1.333	.4798	-.0603	-.0087	-.0033	.0148	*1074
.80	617.89	.00	.00	-1.349	.4841	-.0604	-.0094	-.0041	.0317	*1072
.80	617.95	3.24	.00	-1.235	.4470	-.0705	-.0369	-.0288	-1.5673	*1080
.80	617.89	6.48	.00	-.831	.3981	-.1058	-.0738	-.0535	-3.2493	*1278

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TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(h) Configuration B + P + N + T

M	q, lb/sq ft	β , deg	α , deg	C_L	$C_D^{'}$	C_m	C_l	C_n	C_Y	$C_{D,b}^{'}$
$\beta = 0^\circ$										
1.00	779.72	.00	-4.16	-.217	1.3510	-.1856	-.0080	.0093	-.1969	.1968
1.00	779.98	.00	-2.09	-.056	1.3025	-.1441	-.0065	.0048	-.2042	.1984
1.00	780.01	.00	-.01	.107	1.3015	-.0989	-.0052	.0014	-.2433	.1998
1.00	779.94	.00	-.01	.194	1.2925	-.0999	-.0055	-.0008	-.2442	.1999
1.00	779.90	.00	.01	.208	1.3016	-.0967	-.0053	-.0007	-.2295	.2038
1.00	779.94	.00	2.06	.256	1.3059	-.0523	-.0022	-.0049	-.2182	.2024
1.00	779.94	.00	4.14	.448	1.3262	-.0015	-.0003	-.0053	-.1780	.2117
1.00	779.83	.00	6.22	.640	1.3656	.0486	-.0006	-.0033	-.1078	.2098
1.00	779.98	.00	8.33	.898	1.4366	.1059	-.0009	-.0044	-.0726	.2300
.90	706.80	.00	-4.12	-.267	.9745	-.1347	-.0066	.0073	-.1561	.1121
.90	707.00	.00	-2.07	-.190	.9514	-.0933	-.0070	.0040	-.2136	.1166
.90	707.03	.00	-.01	-.018	.9377	-.0521	-.0047	-.0001	-.2193	.1160
.90	706.83	.00	.01	.077	.9398	-.0498	-.0053	-.0011	-.2224	.1153
.90	707.03	.00	.02	.092	.9390	-.0497	-.0053	-.0012	-.2226	.1153
.90	707.10	.00	2.05	.139	.9495	-.1019	-.0026	-.0033	-.1917	.1137
.90	707.13	.00	4.12	.342	.9874	.0281	-.0006	-.0024	-.1608	.1207
.90	706.96	.00	6.20	.547	1.0327	.0646	-.0003	-.0005	-.0984	.1254
.90	706.96	.00	8.27	.794	1.0942	.1097	-.0003	-.0044	-.0768	.1362
.80	619.74	.00	-4.09	-.245	.9048	-.1206	-.0072	.0067	-.1635	.1156
.80	619.80	.00	-2.06	-.196	.8989	-.0814	-.0072	.0031	-.2084	.1158
.80	619.86	.00	-.01	-.039	.8869	-.0423	-.0050	-.0016	-.1957	.1126
.80	619.77	.00	.02	.105	.8899	-.0405	-.0061	-.0038	-.2201	.1126
.80	619.80	.00	2.05	.135	.8917	-.0032	-.0025	-.0034	-.1803	.1117
.80	619.77	.00	4.10	.310	.9254	.0331	-.0007	-.0033	-.1455	.1164
.80	619.77	.00	6.17	.519	.9696	.0697	-.0005	-.0023	-.1111	.1251
.80	619.74	.00	8.23	.762	1.0373	.1122	-.0004	-.0040	-.0827	.1318
.60	416.87	.00	-4.06	-.174	.8602	-.1090	-.0093	.0076	-.1939	.1133
.60	416.81	.00	-2.04	-.224	.8592	-.0717	-.0077	.0052	-.1965	.1123
.60	416.85	.00	-.04	-.033	.8509	-.0328	-.0055	-.0021	-.2331	.1075
.60	416.89	.00	.02	.129	.8575	-.0318	-.0061	-.0038	-.2375	.1087
.60	416.79	.00	2.04	.104	.8654	.0043	-.0029	-.0035	-.2350	.1087
.60	416.83	.00	4.07	.296	.8885	.0418	-.0010	-.0050	-.2389	.1121
.60	416.85	.00	6.11	.490	.9170	.0764	-.0001	-.0020	-.1849	.1215
.60	416.85	.00	8.16	.759	.9776	.1159	-.0004	-.0021	-.1922	.1367
$\alpha = 0^\circ$										
1.00	780.49	-3.39	.00	.127	1.3638	-.1290	.0526	.0257	2.0296	.2095
1.00	780.46	.01	.00	.167	1.3145	-.1036	-.0011	.0014	-.0715	.2043
1.00	780.46	.01	.00	.167	1.2973	-.1051	-.0009	.0014	-.0711	.1965
1.00	780.49	.02	.00	.152	1.3131	-.1037	-.0012	.0013	-.0863	.2056
1.00	780.57	6.83	.00	.294	1.3627	-.1762	-.1088	-.0853	-4.2818	.2082
.90	708.00	-3.33	.00	.079	1.0095	-.0829	.0465	.0157	1.8588	.0950
.90	707.67	.01	.00	.048	.9476	-.0565	-.0008	.0003	-.0496	.1109
.90	706.86	.01	.00	.033	.9490	-.0574	-.0008	-.0005	-.0502	.1095
.90	707.37	3.34	.00	.033	.9865	-.0830	-.0494	-.0194	-1.9803	.1181
.90	707.43	6.69	.00	.170	.9955	-.1254	-.0978	-.0780	-3.9344	.1289
.80	620.77	-3.27	.00	.062	.9551	-.0666	.0459	.0140	1.7863	.0919
.80	619.54	.01	.00	.035	.8967	-.0474	-.0016	-.0014	-.0787	.1044
.80	619.45	.01	.00	.036	.9033	-.0464	-.0007	-.0012	-.0399	.1044
.80	619.04	3.29	.00	.021	.9363	-.0676	-.0490	-.0164	-1.8906	.1152
.80	619.98	6.58	.00	.160	.9576	-.1069	-.0972	-.0674	-3.7914	.1208
.60	417.44	-3.17	.00	.076	.9205	-.0535	.0453	.0164	1.7532	.0903
.60	416.42	.01	.00	.051	.8643	-.0349	-.0011	.0012	-.0573	.1040
.60	415.92	.01	.00	.133	.8699	-.0358	-.0015	-.0018	-.0619	.1029
.60	416.30	3.18	.00	.036	.8868	-.0520	-.0488	-.0160	-1.8753	.1150
.60	416.38	6.37	.00	.111	.9066	-.0884	-.0935	-.0587	-3.6019	.1162

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(i) Configuration B + W + P + N + T

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^1	C_m	C_l	C_n	C_Y	$C_{D,b}^1$
$\beta = 0^\circ$										
1.00	787.96	.00	-5.58	-8.554	2.4518	.0053	-.0107	.0080	-.1277	.2258
1.00	787.67	.00	-3.01	-5.436	1.9032	-.0269	-.0111	.0050	-.2372	.2228
1.00	787.85	.00	-.50	-2.702	1.6116	-.0415	-.0106	-.0014	-.2408	.2166
1.00	787.85	.00	-.47	-2.547	1.6052	-.0428	-.0110	.0011	-.2698	.2134
1.00	787.93	.00	10.12	10.553	3.2284	.0921	-.0060	.0005	-.0722	.2814*
1.00	787.78	.00	2.09	4.408	1.5338	-.0467	-.0091	-.0008	-.1973	.2223
1.00	787.74	.00	4.77	4.011	1.7417	-.0396	-.0097	-.0011	-.1705	.2268
1.00	787.89	.00	7.47	7.529	2.3297	-.0035	-.0082	-.0000	-.1085	.2558
.90	714.10	.00	-5.24	-6.934	1.7126	-.1524	-.0105	.0070	-.1543	.1243
.90	714.10	.00	-2.71	-3.975	1.2677	-.1139	-.0103	.0013	-.2442	.1212
.90	713.90	.00	-.23	-1.341	1.0853	-.0709	-.0096	-.0041	-.2629	.1163
.90	714.04	.00	-.21	-1.282	1.0675	-.0513	-.0099	-.0005	-.2459	.1091
.90	714.14	.00	2.22	1.045	1.0898	.0055	-.0095	-.0012	-.1947	.1062
.90	714.24	.00	4.78	4.099	1.3548	.0646	-.0115	.0014	-.1549	.1130
.90	714.17	.00	7.36	7.309	1.9113	.1200	-.0087	.0034	-.1061	.1252
.90	714.14	.00	9.96	10.518	2.7582	.1841	-.0064	-.0005	-.0644	.1328
.80	625.97	.00	-4.91	-5.783	1.4550	-.1443	-.0115	.0054	-.1862	.1152
.80	626.12	.00	-2.51	-3.272	1.1301	-.0920	-.0115	.0022	-.2374	.1130
.80	626.12	.00	-.15	-1.000	1.0049	-.0432	-.0099	-.0013	-.2474	.1082
.80	626.15	.00	-.13	-.894	1.0156	-.0396	-.0094	.0013	-.2453	.1082
.80	626.15	.00	2.21	1.188	1.0333	.0146	-.0102	-.0041	-.2051	.1065
.80	626.21	.00	4.66	3.919	1.2740	.0779	-.0107	.0013	-.1795	.1119
.80	626.18	.00	7.12	6.785	1.7676	.1490	-.0095	.0037	-.1146	.1211
.80	626.21	.00	9.62	9.692	2.5211	.2292	-.0064	-.0010	-.1095	.1267
.60	421.18	.00	-4.53	-4.903	1.3035	-.1454	-.0137	.0063	-.2043	.1110
.60	421.06	.00	-2.28	-2.686	1.0630	-.0879	-.0123	.0003	-.2901	.1124
.60	421.08	.00	-.07	-.693	.9776	-.0361	-.0108	-.0034	-.2891	.1089
.60	421.12	.00	-.06	-.641	.9934	-.0329	-.0109	.0007	-.2860	.1077
.60	421.10	.00	2.15	1.223	1.0099	.0223	-.0112	-.0037	-.2334	.1088
.60	421.16	.00	4.41	3.583	1.2198	.0851	-.0111	-.0009	-.1502	.1134
.60	421.10	.00	6.68	6.054	1.6179	.1545	-.0095	.0046	-.1489	.1202
.60	421.12	.00	8.99	8.703	2.2519	.2394	-.0073	.0044	-.0842	.1243
$\alpha = 0^\circ$										
1.00	777.54	-3.42	.00	-2.546	1.5851	-.0810	.0021	.0129	2.2494	.2057
1.00	777.54	.01	.00	-2.983	1.5930	-.0465	-.0117	.0024	-.0471	.2083
1.00	777.42	.01	.00	-2.970	1.5855	-.0472	-.0119	.0030	-.0766	.2110
1.00	777.42	3.43	.00	-2.711	1.6300	-.0740	-.0261	-.0157	-2.2960	.2031
1.00	777.50	6.91	.00	-1.682	1.6215	-.1887	-.0379	-.0437	-4.8608	.2182
.90	704.82	-3.35	.00	-1.403	1.1290	-.0919	.0004	.0205	2.0622	.0918
.90	704.88	.01	.00	-1.710	1.0682	-.0649	-.0108	.0029	-.0626	.1098
.90	705.02	.01	.00	-1.694	1.0704	-.0647	-.0106	.0020	-.0633	.1091
.90	705.02	3.37	.00	-1.514	1.1133	-.0928	-.0193	-.0177	-2.1694	.1156
.90	705.02	6.74	.00	-.930	1.1184	-.1564	-.0363	-.0642	-4.2844	.1250
.80	618.07	-3.29	.00	-1.012	1.0665	-.0773	.0075	.0148	1.9201	.0898
.80	618.16	.01	.00	-1.300	1.0159	-.0525	-.0099	.0030	-.0564	.1063
.80	618.21	.01	.00	-1.300	1.0150	-.0525	-.0101	.0029	-.0754	.1071
.80	618.13	.01	.00	-1.300	1.0181	-.0525	-.0092	.0011	-.0571	.1063
.80	618.13	3.30	.00	-1.162	1.0553	-.0789	-.0252	-.0100	-2.0679	.1146
.80	618.13	6.61	.00	-.660	1.0724	-.1349	-.0500	-.0530	-4.0673	.1211
.60	415.78	-3.18	.00	-.771	1.0257	-.0640	.0117	.0150	1.8150	.0907
.60	415.84	.01	.00	-.966	.9892	-.0460	-.0096	.0051	-.0850	.1017
.60	415.94	.01	.00	-.993	.9929	-.0462	-.0093	-.0006	-.0895	.1041
.60	415.94	3.19	.00	-.911	1.0101	-.0651	-.0300	-.0076	-1.9850	.1151
.60	415.88	6.39	.00	-.488	1.0151	-.1133	-.0537	-.0451	-3.8476	.1188

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(J) Configuration B + P + N + F

M	a , lb/sq ft	β , deg	α , deg	C_L	C_D^i	C_m	C_l	C_n	C_Y	$C_{D,b}$
$\beta = 0^\circ; \delta_L = \delta_R = -2^\circ$										
1.20	873.71	.00	-4.13	-1.358	.9437	.1785	-.0033	.0399	-.3372	.2942
1.20	873.88	.00	-4.13	-1.358	.9428	.1784	-.0031	.0399	-.3368	.2947
1.20	874.08	.00	-2.05	-.777	.8684	.1192	-.0031	.0419	-.3895	.2743
1.20	874.04	.00	.04	-.143	.8384	.0516	-.0010	.0418	-.4014	.2623
1.20	875.25	.00	.05	-.078	.8347	.0512	-.0010	.0404	-.3765	.2631
1.20	874.42	.00	2.14	.518	.8591	-.0192	.0013	.0417	-.3731	.2596
1.20	874.67	.00	4.25	1.270	.9307	-.0996	.0029	.0428	-.3318	.2805
1.20	875.25	.00	6.37	2.081	1.0573	-.1815	.0042	.0377	-.2845	.2892
1.20	875.37	.00	8.49	2.907	1.2564	-.2550	.0046	.0347	-.2508	.2907
1.00	777.65	.00	-4.13	-1.548	.8621	.2133	-.0030	.0325	-.3164	.2528
1.00	777.83	.00	-2.06	-.878	.7799	.1246	-.0021	.0301	-.3327	.2421
1.00	778.13	.00	.03	-.151	.7429	.0432	-.0003	.0276	-.3487	.2350
1.00	777.46	.00	.04	-.121	.7275	.0404	-.0004	.0276	-.3344	.2260
1.00	777.65	.00	.04	-.122	.7336	.0396	-.0000	.0275	-.3336	.2312
1.00	778.05	.00	2.12	.593	.7628	-.0425	.0023	.0253	-.3038	.2355
1.00	777.83	.00	4.22	1.349	.8258	-.1275	.0041	.0289	-.2840	.2521
1.00	777.79	.00	6.32	2.173	.9649	-.2149	.0054	.0274	-.2266	.2773
1.00	777.87	.00	8.42	3.018	1.1658	-.2992	.0055	.0235	-.1887	.2921
.90	705.96	.00	-4.15	-1.485	.5165	.1595	-.0036	.0267	-.3053	.1123
.90	706.09	.00	-2.06	-.879	.4395	.0963	-.0030	.0241	-.3416	.0995
.90	705.79	.00	.00	-.289	.4097	.0508	-.0010	.0194	-.3296	.1010
.90	705.86	.00	.02	-.241	.4125	.0511	-.0009	.0194	-.3136	.1010
.90	705.86	.00	2.09	.287	.4104	.0052	.0013	.0174	-.2980	.1096
.90	705.82	.00	4.18	.926	.4604	-.0476	.0031	.0192	-.2636	.1246
.90	705.86	.00	6.26	1.661	.5523	-.1115	.0048	.0217	-.2126	.1356
.90	705.89	.00	8.36	2.486	.7109	-.1859	.0053	.0203	-.1838	.1436
.80	618.86	.00	-4.12	-1.353	.4825	.1332	-.0042	.0226	-.2814	.1141
.80	619.01	.00	-2.06	-.839	.4205	.0858	-.0033	.0221	-.3382	.1003
.80	618.89	.00	.00	-.287	.3927	.0465	-.0010	.0183	-.3227	.0988
.80	618.92	.00	.02	-.233	.3961	.0468	-.0015	.0181	-.3430	.0988
.80	618.86	.00	2.06	.248	.3989	.0081	.0012	.0164	-.3054	.1044
.80	618.95	.00	4.13	.840	.4336	-.0377	.0028	.0164	-.2313	.1174
.80	619.04	.00	6.22	1.483	.5103	-.0870	.0041	.0189	-.2114	.1284
.80	619.04	.00	8.26	2.176	.6392	-.1349	.0047	.0184	-.1964	.1352
.80	618.92	.00	8.29	2.175	.6389	-.1359	.0047	.0183	-.2150	.1360
$\beta = 0^\circ; \delta_L = \delta_R = -5^\circ$										
1.20	880.15	.00	-4.15	-2.107	1.1120	.3702	-.0056	.0238	-.2431	.3025
1.20	880.19	.00	-2.07	-.538	.9856	.3074	-.0046	.0270	-.2926	.2799
1.20	880.40	.00	.03	-.885	.9149	.2356	-.0029	.0275	-.3046	.2615
1.20	880.07	.00	.03	-.873	.9133	.2364	-.0031	.0287	-.3301	.2622
1.20	880.07	.00	2.13	-.227	.8754	.1633	-.0016	.0274	-.2915	.2678
1.20	880.07	.00	4.23	.470	.8950	.0953	-.0008	.0243	-.2307	.2822
1.20	880.11	.00	6.35	1.191	.9613	.0274	-.0005	.0217	-.1835	.2825
1.20	879.99	.00	8.47	1.979	1.0937	-.0352	-.0000	.0189	-.1766	.2829
1.00	783.05	.00	-4.17	-2.491	1.0884	.4411	-.0053	.0171	-.2227	.2621
1.00	783.05	.00	-2.06	-.766	.9380	.3558	-.0043	.0168	-.2380	.2555
1.00	782.90	.00	.01	-.1045	.8460	.2614	-.0027	.0142	-.2391	.2583
1.00	783.01	.00	.01	-.1059	.8327	.2605	-.0027	.0156	-.2521	.2498
1.00	783.01	.00	2.10	-.306	.7908	.1693	-.0010	.0132	-.2238	.2503
1.00	783.05	.00	4.20	.478	.8129	.0866	-.0001	.0111	-.1533	.2725
1.00	782.97	.00	6.30	1.243	.8795	.0062	.0005	.0098	-.1121	.2820
1.00	783.05	.00	8.40	2.016	.9890	-.0613	.0007	.0076	-.1026	.2908
.90	709.81	.00	-4.16	-2.486	.7490	.4078	-.0057	.0170	-.2117	.1131
.90	709.91	.00	-2.09	-.809	.5893	.3160	-.0043	.0160	-.2598	.1039
.90	709.85	.00	-.01	-.110	.4882	.2438	-.0030	.0123	-.2636	.1105
.90	709.91	.00	-.01	-.125	.4852	.2437	-.0028	.0109	-.2321	.1098
.90	709.91	.00	2.07	-.457	.4409	.1805	-.0009	.0098	-.2326	.1169
.90	709.85	.00	4.15	.202	.4433	.1181	-.0001	.0085	-.1542	.1274
.90	709.88	.00	6.24	.870	.4902	.0633	-.0001	.0070	-.1428	.1355
.90	709.85	.00	8.34	1.583	.5818	.0180	-.0001	.0056	-.0999	.1442
.80	622.39	.00	-4.15	-2.251	.6811	.3310	-.0068	.0158	-.2410	.1135
.80	622.27	.00	-2.07	-.618	.5389	.2715	-.0057	.0133	-.2444	.1030
.80	622.30	.00	-.01	-.014	.4515	.2146	-.0037	.0108	-.2459	.1064
.80	622.27	.00	.00	-.996	.4487	.2099	-.0032	.0107	-.2452	.1064
.80	622.30	.00	2.06	-.426	.4154	.1614	-.0012	.0077	-.2104	.1120
.80	622.21	.00	4.12	.201	.4249	.1104	-.0005	.0066	-.1581	.1201
.80	622.15	.00	6.20	.805	.4711	.0698	-.0003	.0075	-.1235	.1286
.80	622.30	.00	8.28	1.461	.5517	.0352	-.0001	.0056	-.0926	.1353

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(j) Configuration B + P + N + F - Concluded

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D	C_m	C_l	C_n	C_Y	$C_{D,b}$
$\alpha = 0^\circ; \delta_L = -2^\circ; \delta_R = 2^\circ$										
1.20	874.33	-3.37	.00	.191	.8970	-.0432	.0277	-.2060	2.4050	.2482
1.20	874.33	-.01	.00	.117	.8717	-.0260	-.0111	-.0633	.2463	.2459
1.20	874.50	.00	.00	.127	.8742	-.0266	-.0108	-.0629	.1941	.2458
1.20	874.38	3.37	.00	.127	.8478	-.0378	-.0536	.0710	-1.9730	.2674
1.20	874.38	6.77	.00	.312	.8424	-.0636	-.0977	.2091	-4.3252	.3059
1.00	777.79	-3.33	.00	.222	.7748	-.0753	.0257	-.1886	2.3377	.2528
1.00	777.68	-.01	.00	.161	.7701	-.0509	-.0111	-.0600	.2320	.2443
1.00	777.65	-.01	.00	.188	.7848	-.0508	-.0111	-.0579	.2039	.2496
1.00	777.79	-.01	.00	.188	.7724	-.0500	-.0107	-.0587	.2037	.2417
1.00	777.68	3.30	.00	.184	.7389	-.0665	-.0501	.0538	-1.8253	.2338
1.00	777.61	6.65	.00	.360	.6550	-.1028	-.0909	.1550	-3.9872	.2620
.90	705.02	-3.29	.00	.035	.4187	-.0380	.0266	-.1195	2.0572	.1033
.90	705.09	-.02	.00	-.010	.4155	-.0305	-.0091	-.0460	.2170	.0997
.90	705.15	-.01	.00	.004	.4189	-.0304	-.0085	-.0462	.1848	.0997
.90	705.12	3.26	.00	-.031	.3981	-.0341	-.0480	.0182	-1.6371	.1040
.90	705.02	6.55	.00	.131	.3506	-.0576	-.0878	.0732	-3.5042	.1236
.80	618.45	-3.24	.00	.044	.3989	-.0372	.0261	-.1125	1.9688	.1005
.80	618.45	-.01	.00	.004	.3996	-.0272	-.0093	-.0432	.2207	.0972
.80	618.45	-.01	.00	.004	.4030	-.0272	-.0093	-.0432	.2207	.0980
.80	618.42	3.21	.00	-.031	.3850	-.0309	-.0476	.0165	-1.5411	.1005
.80	618.45	6.45	.00	.126	.3426	-.0546	-.0871	.0648	-3.3180	.1186

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(k) Configuration B + P + N + F + T

M	q , lb/sq ft	β , deg	α , deg	C_L	C_D^l	C_m	C_l	C_n	C_Y	$C_{D,b}^l$
$\beta = 0^\circ; \delta_L = \delta_R = -2^\circ$										
1.00	782.57	.00	-4.21	-1.827	1.7049	.1910	-.0038	.0344	-.2937	.1993
1.00	782.71	.00	-2.11	-1.203	1.5787	.1356	-.0025	.0323	-.3408	.2095
1.00	782.75	.00	-.03	-.556	1.4945	.0651	.0007	.0286	-.3412	.2187
1.00	782.82	.00	-.03	-.556	1.4866	.0659	.0007	.0286	-.3412	.2147
1.00	782.57	.00	2.07	.126	1.4558	-.0051	.0026	.0229	-.3167	.2225
1.00	782.71	.00	4.15	.783	1.4599	-.0717	.0042	.0204	-.2600	.2376
1.00	782.57	.00	6.26	1.433	1.5331	-.1284	.0053	.0196	-.2034	.2355
1.00	782.75	.00	8.37	2.152	1.6335	-.1770	.0062	.0165	-.1652	.2337
.90	709.78	.00	-4.16	-1.482	1.2267	.1395	-.0052	.0258	-.2890	.0795
.90	709.71	.00	-2.09	-1.040	1.1110	.1010	-.0037	.0278	-.3356	.1033
.90	709.81	.00	-.02	-.527	1.0382	.0638	-.0011	.0241	-.3381	.1076
.90	709.75	.00	-.01	-.512	1.0373	.0664	-.0014	.0250	-.3380	.1084
.90	709.78	.00	2.07	.020	1.0273	.0293	.0017	.0206	-.2918	.1004
.90	709.75	.00	4.15	.649	1.0539	-.0079	.0029	.0179	-.2483	.1131
.90	709.71	.00	6.22	1.119	1.1022	-.0438	.0039	.0163	-.2024	.1127
.90	709.81	.00	8.32	1.742	1.1983	-.0794	.0047	.0161	-.1572	.1250
.80	622.36	.00	-4.14	-1.511	1.1488	.1355	-.0056	.0214	-.2444	.0808
.80	622.45	.00	-2.07	-.993	1.0334	.1011	-.0046	.0238	-.3177	.1006
.80	622.56	.00	-.01	-.506	.9735	.0713	-.0013	.0200	-.3192	.1064
.80	622.36	.00	-.01	-.507	.9711	.0723	-.0017	.0218	-.3368	.1072
.80	622.45	.00	2.06	-.014	.9593	.0406	-.0011	.0165	-.2852	.1030
.80	622.45	.00	4.12	.497	.9868	.0091	.0028	.0158	-.2311	.1061
.80	622.33	.00	6.19	1.026	1.0316	-.0232	.0038	.0152	-.1784	.1172
.80	622.42	.00	8.28	1.660	1.1324	-.0558	.0039	.0125	-.1303	.1239
.60	418.63	.00	-4.09	-1.372	1.0410	.1323	-.0067	.0273	-.2853	.1116
.60	418.65	.00	-2.05	-.933	.9893	.1058	-.0052	.0213	-.3194	.1033
.60	418.65	.00	-.00	-.495	.9289	.0807	-.0024	.0180	-.3485	.1071
.60	418.55	.00	-.00	-.467	.9423	.0824	-.0018	.0183	-.2928	.1071
.60	418.55	.00	2.03	-.024	.9307	.0502	-.0010	.0165	-.2926	.1058
.60	418.57	.00	4.08	.502	.9481	.0229	-.0026	.0149	-.2404	.1068
.60	418.53	.00	6.12	.975	.9876	-.0047	.0034	.0151	-.1601	.1161
.60	418.61	.00	8.18	1.579	1.0710	-.0344	.0032	.0119	-.1407	.1277
$\beta = 0^\circ; \delta_L = \delta_R = -5^\circ$										
1.00	783.05	.00	-4.24	-2.657	1.9837	.3946	-.0061	.0155	-.2197	.2115
1.00	783.38	.00	-2.13	-2.018	1.8061	.3461	-.0046	.0163	-.2940	.2228
1.00	783.42	.00	-.06	-1.438	1.6745	.2752	-.0015	.0184	-.3472	.2386
1.00	783.34	.00	-.06	-1.435	1.6471	.2715	-.0015	.0170	-.3042	.2243
1.00	783.34	.00	-.06	-1.436	1.6560	.2738	-.0013	.0171	-.3041	.2289
1.00	783.45	.00	2.03	-.744	1.5738	.1961	.0011	.0125	-.2920	.2443
1.00	783.38	.00	4.13	-.027	1.4971	.1201	.0017	.0070	-.2108	.2452
1.00	783.38	.00	6.23	.654	1.5343	.0598	.0018	.0039	-.1583	.2514
1.00	783.56	.00	8.34	1.322	1.5637	.0169	.0016	.0004	-.1079	.2348
.90	710.11	.00	-4.19	-2.201	1.4875	.3017	-.0062	.0108	-.1967	.0816
.90	710.15	.00	-2.13	-.803	1.3023	.2738	-.0047	.0155	-.2573	.0989
.90	710.38	.00	-.05	-1.219	1.1735	.2269	-.0024	.0160	-.3210	.1054
.90	710.18	.00	-.05	-1.251	1.1706	.2285	-.0022	.0154	-.3050	.1054
.90	710.15	.00	2.03	-.654	1.0967	.1709	.0002	.0123	-.2580	.1039
.90	710.18	.00	4.11	-.072	1.0789	.1308	.0012	.0079	-.2157	.1145
.90	710.21	.00	6.20	.462	1.1020	.0963	.0012	.0049	-.1416	.1155
.90	710.18	.00	8.28	1.040	1.1649	.0738	.0005	.0018	-.0862	.1291
.80	622.71	.00	-4.16	-2.099	1.3798	.2942	-.0067	.0097	-.1896	.0800
.80	622.62	.00	-2.09	-.704	1.2111	.2792	-.0059	.0144	-.2800	.1038
.80	622.56	.00	-.03	-1.198	1.0912	.2209	-.0031	.0102	-.2811	.1072
.80	622.62	.00	-.02	-1.144	1.0862	.2241	-.0030	.0083	-.2650	.1072
.80	622.68	.00	2.04	-.615	1.0209	.1726	-.0004	.0079	-.2633	.1046
.80	622.65	.00	4.11	-.104	1.0130	.1363	.0010	.0064	-.1918	.1126
.80	622.59	.00	6.17	.390	1.0329	.1066	.0012	.0031	-.1430	.1212
.80	622.68	.00	8.26	.989	1.0599	.0814	.0009	.0015	-.0947	.1311
.60	418.77	.00	-4.10	-2.103	1.2829	.2826	-.0072	.0095	-.1976	.0825
.60	418.87	.00	-2.05	-.594	1.1140	.2507	-.0078	.0100	-.2841	.1045
.60	418.77	.00	-.02	-1.104	1.0155	.2105	-.0038	.0079	-.2822	.1083
.60	418.83	.00	-.02	-1.104	1.0259	.2105	-.0034	.0079	-.2816	.1070
.60	418.79	.00	2.03	-.609	.9744	.1758	-.0011	.0060	-.2827	.1082
.60	418.77	.00	4.07	-.108	.9626	.1442	-.0006	.0061	-.1734	.1128
.60	418.81	.00	6.12	.417	.9857	.1168	-.0006	.0031	-.1530	.1185
.60	418.75	.00	8.17	.970	1.0434	.0925	-.0002	.0019	-.0778	.1324

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(k) Configuration B + P + N + F + T - Concluded

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^1	C_m	C_l	C_n	C_Y	$C_{D,b}^1$
$\alpha = 0^\circ; \delta_L = -2^\circ; \delta_R = 2^\circ$										
1.00	778.42	-3.45	.00	-.154	1.4804	-.0589	.0212	-.1769	2.9677	.1839
1.00	778.24	-.01	.00	-.249	1.4593	-.0322	-.0109	-.0596	.2078	.2049
1.00	779.16	-.01	.00	-.206	1.4622	-.0296	-.0111	-.0574	.1936	.2125
1.00	778.83	3.44	.00	-.261	1.4952	-.0540	-.0454	.0557	-2.5473	.2119
1.00	779.42	6.89	.00	-.066	1.4643	-.0997	-.0838	.1496	-5.3095	.2242
.90	704.52	-3.37	.00	-.164	1.1026	-.0320	.0249	-.1275	2.6082	.0875
.90	704.68	-.01	.00	-.240	1.0195	-.0076	-.0085	-.0437	.1733	.1077
.90	704.85	-.01	.00	-.257	1.0255	-.0085	-.0079	-.0446	.1737	.1070
.90	704.78	3.35	.00	-.240	1.0605	-.0394	-.0435	.0347	-2.2435	.1171
.90	704.85	6.74	.00	-.134	1.0533	-.0704	-.0792	.0597	-4.6469	.1308
.80	617.89	-3.32	.00	-.229	1.0327	-.0125	.0252	-.1155	2.4548	.0907
.80	617.98	.00	.00	-.297	.9569	.0035	-.0084	-.0415	.1673	.1055
.80	617.89	.00	.00	-.261	.9611	.0038	-.0080	-.0426	.1666	.1055
.80	617.86	3.29	.00	-.302	.9981	-.0187	-.0435	.0286	-2.1506	.1163
.80	617.89	6.62	.00	-.151	1.0009	-.0486	-.0793	.0523	-4.3821	.1245
.60	415.74	-3.19	.00	-.333	.9826	.0027	.0246	-.0954	2.3006	.0956
.60	415.59	-.01	.00	-.395	.9277	.0154	-.0081	-.0387	.1962	.1054
.60	415.69	.00	.00	-.264	.9401	.0133	-.0080	-.0396	.0837	.1042
.60	415.63	3.20	.00	-.341	.9492	-.0015	-.0433	.0141	-1.9988	.1164
.60	415.63	6.39	.00	-.229	.9423	-.0306	-.0759	.0443	-4.1008	.1213

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(1) Configuration B + W + P + N + F

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D'	C_m	C_l	C_n	C_Y	C_b, b
$\beta = 0^\circ; \delta_L = \delta_R = -2^\circ$										
1.20	887.76	.00	-5.56	-7.722	1.8252	.0437	-.0080	.0284	-.2210	.2599
1.20	887.72	.00	-2.94	-4.826	1.2916	.0427	-.0083	.0366	-.2987	.2648
1.20	887.55	.00	-.34	-1.820	1.0280	.0033	-.0074	.0401	-.3518	.2663
1.20	887.76	.00	-.33	-1.808	1.0305	.0021	-.0068	.0407	-.3502	.2657
1.20	887.72	.00	10.40	11.599	2.9216	-.1706	.0003	.0282	-.1775	.3087
1.20	887.63	.00	2.26	1.135	1.0266	-.0370	-.0059	.0435	-.3181	.2632
1.20	887.72	.00	4.94	4.512	1.3078	-.0779	-.0061	.0438	-.2354	.2693
1.20	887.68	.00	7.67	8.052	1.9306	-.1120	-.0029	.0398	-.2077	.2838
1.00	789.59	.00	-5.53	-8.335	1.6891	-.0005	-.0071	.0280	-.2222	.2350
1.00	789.52	.00	-2.85	-4.718	1.0948	-.0062	-.0056	.0296	-.3189	.2191
1.00	789.55	.00	-.26	-1.397	.8537	-.0516	-.0038	.0275	-.2853	.1968
1.00	789.37	.00	-.24	-1.328	.8535	-.0527	-.0039	.0286	-.3142	.2039
1.00	789.33	.00	10.28	12.681	2.8882	-.2327	-.0007	.0264	-.1377	.2718
1.00	789.33	.00	2.30	1.746	.8977	-.0923	-.0037	.0290	-.2414	.2212
1.00	789.52	.00	4.94	5.320	1.2179	-.1391	-.0043	.0326	-.1722	.2378
1.00	789.44	.00	7.62	9.144	1.8883	-.1908	-.0031	.0314	-.1695	.2488
.90	715.34	.00	-5.28	-7.474	1.2095	-.0806	-.0097	.0203	-.2006	.1149
.90	715.55	.00	-2.71	-4.299	.7211	-.0366	-.0067	.0207	-.2797	.1067
.90	715.65	.00	-.20	-1.346	.5359	-.0158	-.0042	.0200	-.2814	.1110
.90	715.45	.00	-.20	-1.315	.5358	-.0165	-.0042	.0207	-.2973	.1111
.90	715.51	.00	10.07	12.037	2.4269	-.0225	-.0044	.0255	-.1112	.1332
.90	715.41	.00	2.26	1.370	.5502	-.0076	-.0051	.0210	-.2477	.1209
.90	715.51	.00	4.82	4.705	.8445	-.0076	-.0062	.0248	-.1534	.1164
.90	715.51	.00	7.44	8.351	1.4648	-.0137	-.0057	.0273	-.1494	.1249
.80	627.18	.00	-5.00	-6.576	1.0696	-.0865	-.0100	.0207	-.2228	.1101
.80	627.35	.00	-2.53	-3.684	.6620	-.0355	-.0059	.0201	-.2829	.1022
.80	627.27	.00	-.15	-1.140	.5176	-.0127	-.0052	.0175	-.2945	.1039
.80	627.27	.00	-.14	-1.087	.5201	-.0123	-.0047	.0193	-.2740	.1048
.80	627.30	.00	2.23	1.322	.5380	-.0030	-.0046	.0192	-.2277	.1136
.80	627.41	.00	4.68	4.331	.7961	-.0157	-.0060	.0215	-.1699	.1108
.80	627.27	.00	7.17	7.580	1.3330	-.0330	-.0049	.0240	-.1468	.1177
.80	627.18	.00	9.68	10.890	2.1611	-.0491	-.0028	.0213	-.1453	.1265
$\beta = 0^\circ; \delta_L = \delta_R = -5^\circ$										
1.20	888.67	.00	-5.59	-8.483	1.9554	.2176	-.0086	.0206	-.1762	.2819
1.20	888.67	.00	-2.96	-5.546	1.3837	.2216	-.0087	.0287	-.2677	.2747
1.20	888.72	.00	-.36	-2.546	1.0911	.1903	-.0073	.0330	-.3085	.2809
1.20	888.59	.00	-.35	-2.585	1.0865	.1874	-.0074	.0336	-.3334	.2798
1.20	888.67	.00	10.37	10.765	2.7387	.0312	-.0037	.0185	-.1406	.3050
1.20	888.67	.00	2.25	.433	1.0338	.1428	-.0072	.0343	-.2836	.2790
1.20	888.59	.00	4.92	3.773	1.2639	.1051	-.0091	.0322	-.1932	.2770
1.20	888.63	.00	7.65	7.263	1.8270	.0800	-.0065	.0286	-.1588	.2818
1.00	790.52	.00	-5.54	-9.135	1.8477	.2066	-.0073	.0193	-.1726	.2488
1.00	790.55	.00	-2.88	-5.639	1.2221	.2017	-.0068	.0220	-.2537	.2284
1.00	790.48	.00	-.27	-2.229	.9408	.1570	-.0046	.0224	-.2697	.2262
1.00	790.44	.00	-.27	-2.227	.9247	.1563	-.0052	.0217	-.2566	.2191
1.00	790.41	.00	10.26	11.783	2.7069	-.0183	-.0052	.0140	-.0539	.2708
1.00	790.33	.00	2.29	.884	.9114	.1109	-.0057	.0211	-.2156	.2280
1.00	790.48	.00	4.93	4.557	1.1750	.0588	-.0067	.0191	-.1594	.2466
1.00	790.33	.00	7.60	8.242	1.7759	.0100	-.0064	.0171	-.1140	.2485
.90	716.48	.00	-5.31	-8.350	1.3665	.1157	-.0103	.0156	-.2045	.1232
.90	716.55	.00	-2.74	-5.108	.8353	.1560	-.0065	.0165	-.2783	.1136
.90	716.62	.00	-.23	-2.190	.5954	.1665	-.0050	.0160	-.2435	.1201
.90	716.58	.00	-.22	-2.113	.5956	.1670	-.0053	.0165	-.2765	.1223
.90	716.52	.00	10.05	11.252	2.2963	.1486	-.0087	.0140	-.0787	.1365
.90	716.65	.00	2.25	.647	.5646	.1631	-.0060	.0157	-.2115	.1307
.90	716.65	.00	4.80	3.979	.8146	.1581	-.0074	.0160	-.1534	.1233
.90	716.58	.00	7.42	7.579	1.3858	.1492	-.0085	.0172	-.1134	.1290
.80	628.12	.00	-5.02	-7.336	1.1900	.0783	-.0112	.0123	-.1760	.1179
.80	628.15	.00	-2.57	-4.489	.7477	.1260	-.0082	.0143	-.2777	.1102
.80	628.15	.00	-.17	-1.828	.5583	.1459	-.0057	.0152	-.2656	.1143
.80	628.09	.00	-.16	-1.811	.5598	.1451	-.0057	.0151	-.2659	.1144
.80	628.24	.00	2.22	.684	.5428	.1600	-.0063	.0148	-.2218	.1231
.80	628.09	.00	4.66	3.676	.7707	.1612	-.0081	.0143	-.1482	.1164
.80	628.15	.00	7.16	6.942	1.2710	.1767	-.0083	.0159	-.1226	.1215
.80	628.15	.00	9.67	10.216	2.0611	.1992	-.0071	.0127	-.0857	.1287

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Continued

(i) Configuration B + W + P + N + F - Concluded

M	q, lb/sq ft	β , deg	α , deg	C_L	C_D^i	C_m	C_l	C_n	C_Y	$C_D^i b$
$\alpha = 0^\circ; \delta_L = -2^\circ; \delta_R = 2^\circ$										
1.20	886.51	-3.46	.00	-1.364	1.0740	-.1261	-.0248	-.1865	2.7183	.2540
1.20	886.43	-.02	.00	-1.748	1.0610	-.0837	-.0159	-.0699	.2976	.2517
1.20	886.60	-.01	.00	-1.736	1.0596	-.0829	-.0164	-.0688	.2585	.2511
1.20	886.51	3.43	.00	-1.454	1.0470	-.1196	-.0105	.0410	-2.1666	.2626
1.20	886.43	6.90	.00	-.654	1.0401	-.2420	-.0166	.1624	-4.7484	.2885
1.00	789.07	-3.40	.00	-1.005	.8444	-.1844	-.0319	-.1342	2.5152	.2092
1.00	788.93	-.03	.00	-1.264	.8610	-.1585	-.0208	-.0633	.3231	.1969
1.00	788.85	-.02	.00	-1.250	.8556	-.1592	-.0209	-.0612	.2954	.1957
1.00	788.93	3.35	.00	-1.188	.8245	-.1697	-.0095	-.0028	-1.8783	.1937
1.00	788.96	6.77	.00	-.344	.7992	-.2652	-.0023	.0446	-4.2753	.2286
.90	715.21	-3.33	.00	-.989	.5342	-.1331	-.0226	-.0899	2.2191	.1075
.90	715.28	-.03	.00	-1.290	.5384	-.1101	-.0173	-.0519	.2820	.1047
.90	715.18	-.02	.00	-1.256	.5393	-.1100	-.0173	-.0505	.2506	.1054
.90	715.21	3.30	.00	-1.128	.5216	-.1242	-.0129	-.0176	-1.7269	.1054
.90	715.18	6.63	.00	-.606	.4785	-.1853	-.0151	.0024	-3.7219	.1225
.80	627.00	-3.27	.00	-.784	.5153	-.1204	-.0178	-.0890	2.1098	.1040
.80	627.00	-.02	.00	-1.049	.5222	-.0992	-.0164	-.0474	.2394	.1007
.80	626.97	-.01	.00	-1.068	.5202	-.0965	-.0170	-.0483	.2191	.1007
.80	627.00	3.24	.00	-.952	.5076	-.1118	-.0174	-.0118	-1.6416	.1007
.80	626.97	6.51	.00	-.499	.4765	-.1640	-.0231	.0123	-3.5184	.1154

TABLE III.- AERODYNAMIC CHARACTERISTICS OF THE VARIOUS MODEL BUILDUP CONFIGURATIONS - Concluded

(m) Configuration B + W + P + N + F + T

M	q , lb/sq ft	β , deg	α , deg	C_L	C_D^l	C_m	C_l	C_n	C_Y	$C_{D,b}^l$
$\beta = 0^\circ; \delta_L = \delta_R = -2^\circ$										
1.00	790.29	.00	-5.61	-9.301	2.6639	.1779	-.0060	.0371	-.2934	.1905
1.00	790.52	.00	-5.60	-9.339	2.7249	.1926	-.0052	.0360	-.2786	.2296
1.00	790.70	.00	-3.01	-6.048	2.0959	.1255	-.0054	.0360	-.3426	.2187
1.00	790.74	.00	-4.49	-2.998	1.7453	.0484	-.0042	.0326	-.4023	.2055
1.00	790.66	.00	-.48	-3.012	1.7648	.0536	-.0046	.0315	-.3750	.2158
1.00	790.74	.00	10.18	11.527	3.4201	.1088	-.0007	.0229	-.1770	.2562
1.00	790.70	.00	2.11	.408	1.6378	-.0218	-.0034	.0301	-.3475	.2099
1.00	790.66	.00	4.80	4.291	1.8511	-.0761	-.0039	.0270	-.2587	.2163
1.00	790.59	.00	7.53	8.187	2.4997	-.1044	-.0035	.0254	-.2263	.2466
.90	716.89	.00	-5.25	-7.564	1.8537	.0124	-.0075	.0249	-.2593	.1111
.90	716.75	.00	-2.72	-4.543	1.3853	.0355	-.0066	.0246	-.3238	.1044
.90	716.79	.00	-.25	-1.777	1.1799	.0393	-.0048	.0238	-.3743	.0981
.90	716.75	.00	-.24	-1.715	1.1762	.0406	-.0051	.0237	-.3757	.0988
.90	716.75	.00	10.01	11.137	2.9237	.0912	-.0026	.0195	-.1739	.1273
.90	716.89	.00	2.23	.936	1.1812	.0536	-.0054	.0232	-.3262	.0980
.90	716.79	.00	4.80	4.234	1.4390	.0669	-.0062	.0246	-.2673	.1041
.90	716.72	.00	7.39	7.598	2.0101	.0775	-.0051	.0233	-.1960	.1170
.80	628.50	.00	-4.94	-6.500	1.6349	.0094	-.0085	.0246	-.2587	.0944
.80	628.38	.00	-2.53	-3.809	1.2602	.0363	-.0076	.0241	-.3403	.1020
.80	628.32	.00	-.14	-1.313	1.1018	.0515	-.0049	.0215	-.3294	.0989
.80	628.29	.00	-.14	-1.332	1.1091	.0504	-.0058	.0222	-.3848	.0981
.80	628.41	.00	2.22	1.013	1.1187	.0682	-.0063	.0221	-.3393	.0972
.80	628.35	.00	4.67	3.920	1.3534	.0900	-.0058	.0212	-.2450	.1018
.80	628.38	.00	7.15	7.015	1.8542	.1150	-.0061	.0233	-.2021	.1158
.80	628.35	.00	9.65	10.276	2.6590	.1461	-.0031	.0192	-.1646	.1222
.60	422.58	.00	-4.55	-5.610	1.4576	.0122	-.0098	.0190	-.3519	.0986
.60	422.52	.00	-2.30	-3.264	1.1816	.0409	-.0080	.0196	-.3480	.1036
.60	422.54	.00	-.07	-1.145	1.0653	.0582	-.0068	.0177	-.3719	.1025
.60	422.46	.00	-.06	-1.016	1.0647	.0689	-.0063	.0174	-.4009	.1025
.60	422.56	.00	2.16	1.032	1.0906	.0801	-.0066	.0175	-.3427	.1000
.60	422.52	.00	4.42	3.575	1.2882	.1045	-.0064	.0180	-.2901	.1046
.60	422.52	.00	6.70	6.257	1.7072	.1328	-.0062	.0198	-.2112	.1113
.60	422.52	.00	9.00	9.038	2.3440	.1718	-.0038	.0169	-.1771	.1191
$\alpha = 0^\circ; \delta_L = -2^\circ; \delta_R = 2^\circ$										
1.00	788.19	-3.48	.00	-2.557	1.7322	-.0746	-.0221	-.1553	3.0158	.2165
1.00	787.93	-.02	.00	-2.914	1.7365	-.0432	-.0207	-.0591	.2582	.2282
1.00	787.93	-.01	.00	-2.987	1.7288	-.0445	-.0200	-.0576	.2327	.2230
1.00	788.04	3.44	.00	-2.713	1.7358	-.0672	-.0196	.0308	-2.5441	.2043
1.00	787.85	6.98	.00	-1.858	1.7426	-.1492	-.0205	.0992	-5.5350	.2276
.90	714.41	-3.40	.00	-1.512	1.1955	-.0685	-.0168	-.0926	2.6216	.0934
.90	714.37	-.01	.00	-1.747	1.1319	-.0474	-.0165	-.0457	.1799	.1062
.90	714.34	-.01	.00	-1.793	1.1370	-.0477	-.0170	-.0464	.1791	.1070
.90	714.41	3.38	.00	-1.588	1.1727	-.0737	-.0157	-.0016	-2.2808	.1098
.90	714.30	6.79	.00	-1.010	1.1781	-.1241	-.0248	.0100	-4.6868	.1205
.80	626.27	-3.33	.00	-1.185	1.1328	-.0474	-.0099	-.0937	2.5289	.0911
.80	626.30	-.01	.00	-1.373	1.0707	-.0282	-.0159	-.0432	.1716	.1057
.80	626.12	.00	.00	-1.375	1.0792	-.0282	-.0157	-.0434	.1535	.1058
.80	626.15	3.32	.00	-1.272	1.1029	-.0508	-.0217	.0049	-2.1506	.1098
.80	626.18	6.65	.00	-0.808	1.1156	-.0978	-.0357	.0205	-4.4752	.1188
.60	421.10	-3.21	.00	-.905	1.0972	-.0306	-.0056	-.0870	2.3323	.0919
.60	421.12	-.01	.00	-1.149	1.0403	-.0161	-.0159	-.0435	.1848	.1052
.60	421.08	.00	.00	-1.071	1.0508	-.0142	-.0163	-.0411	.1308	.1065
.60	421.14	3.19	.00	-1.023	1.0572	-.0303	-.0258	-.0006	-2.0573	.1125
.60	421.10	6.40	.00	-.637	1.0539	-.0740	-.0398	.0216	-4.1368	.1185

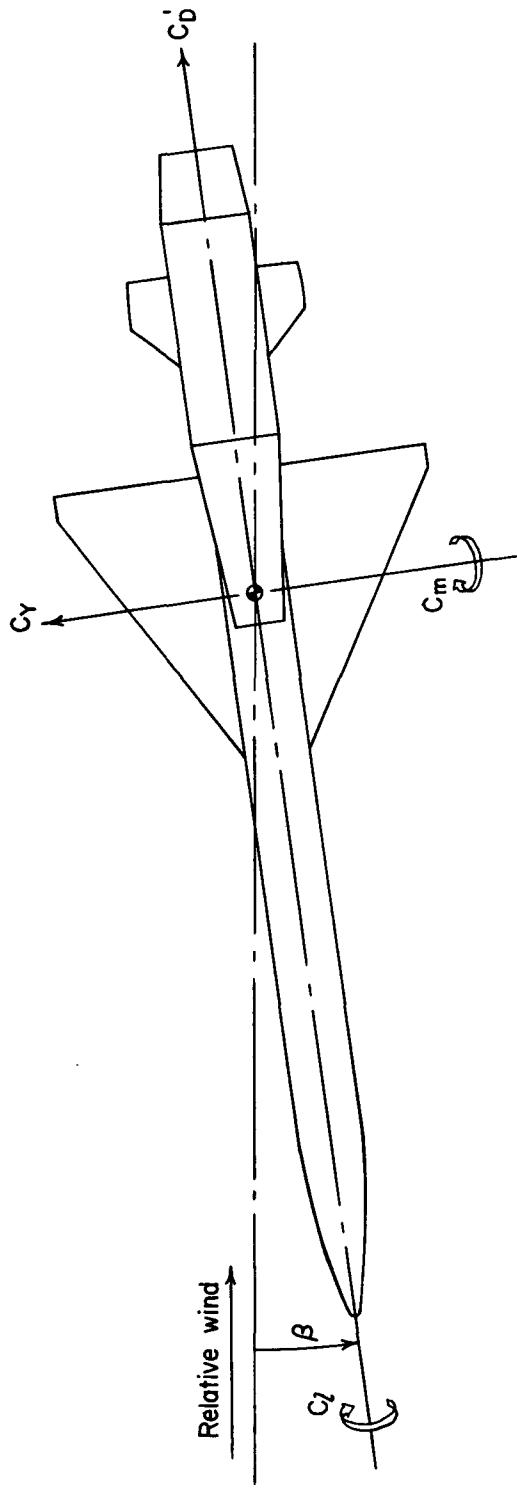
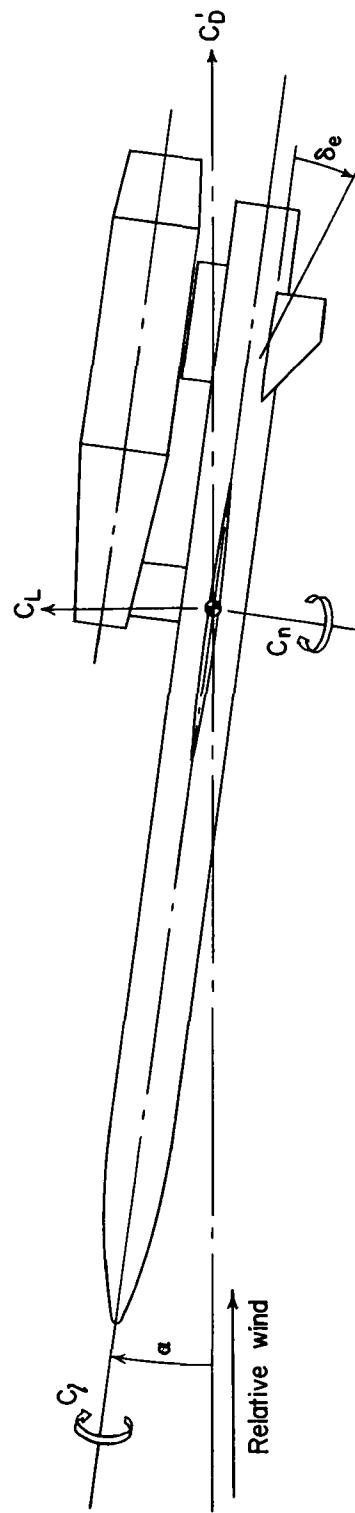
(a) Axis system for $\alpha = 0^\circ$.(b) Axis system for $\beta = 0^\circ$.

Figure 1.- System of axes. Arrows denote positive direction of force, moment, and angular measurements.

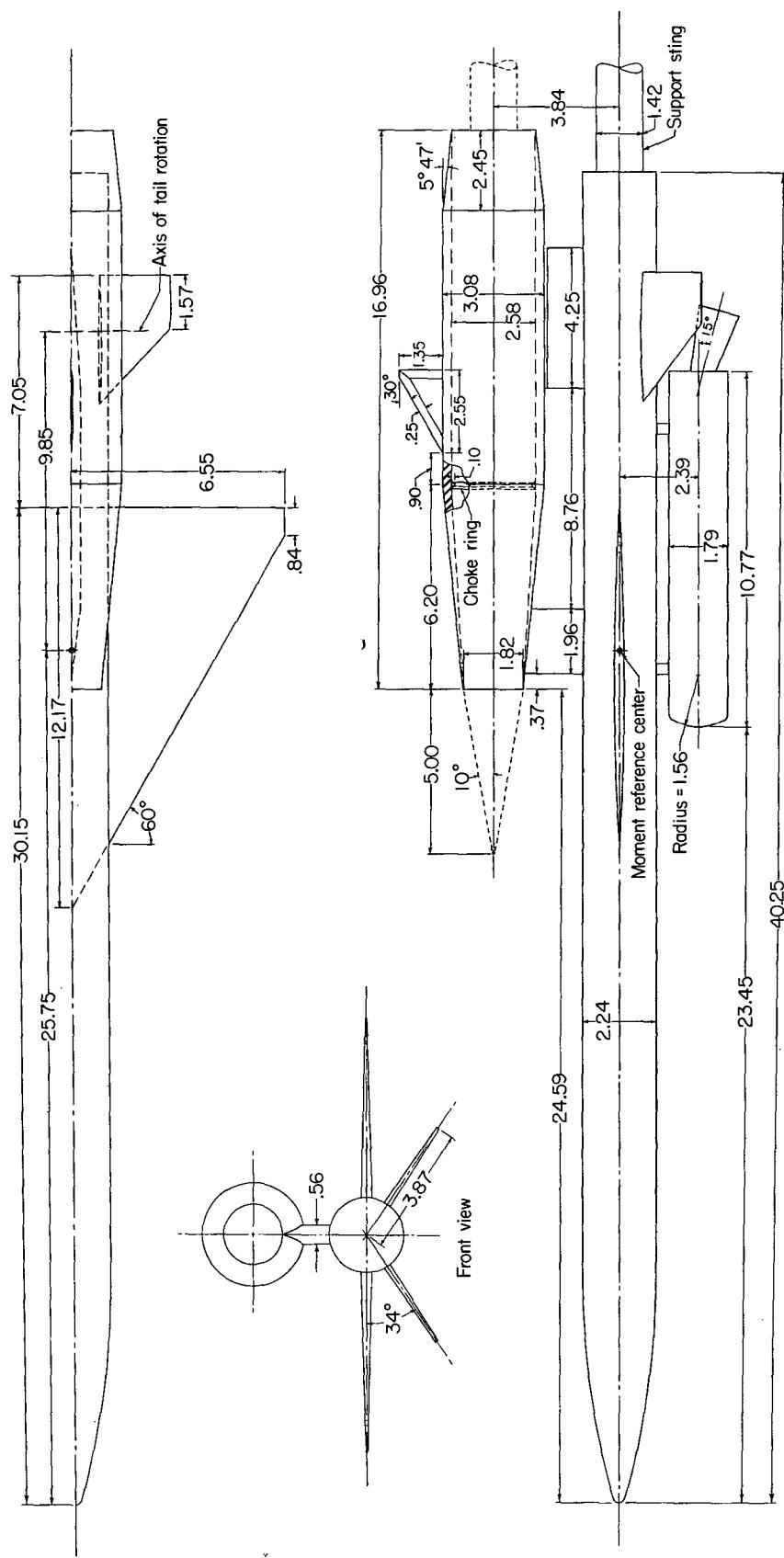


Figure 2.- Three-view drawing of model. All linear dimensions are in inches.

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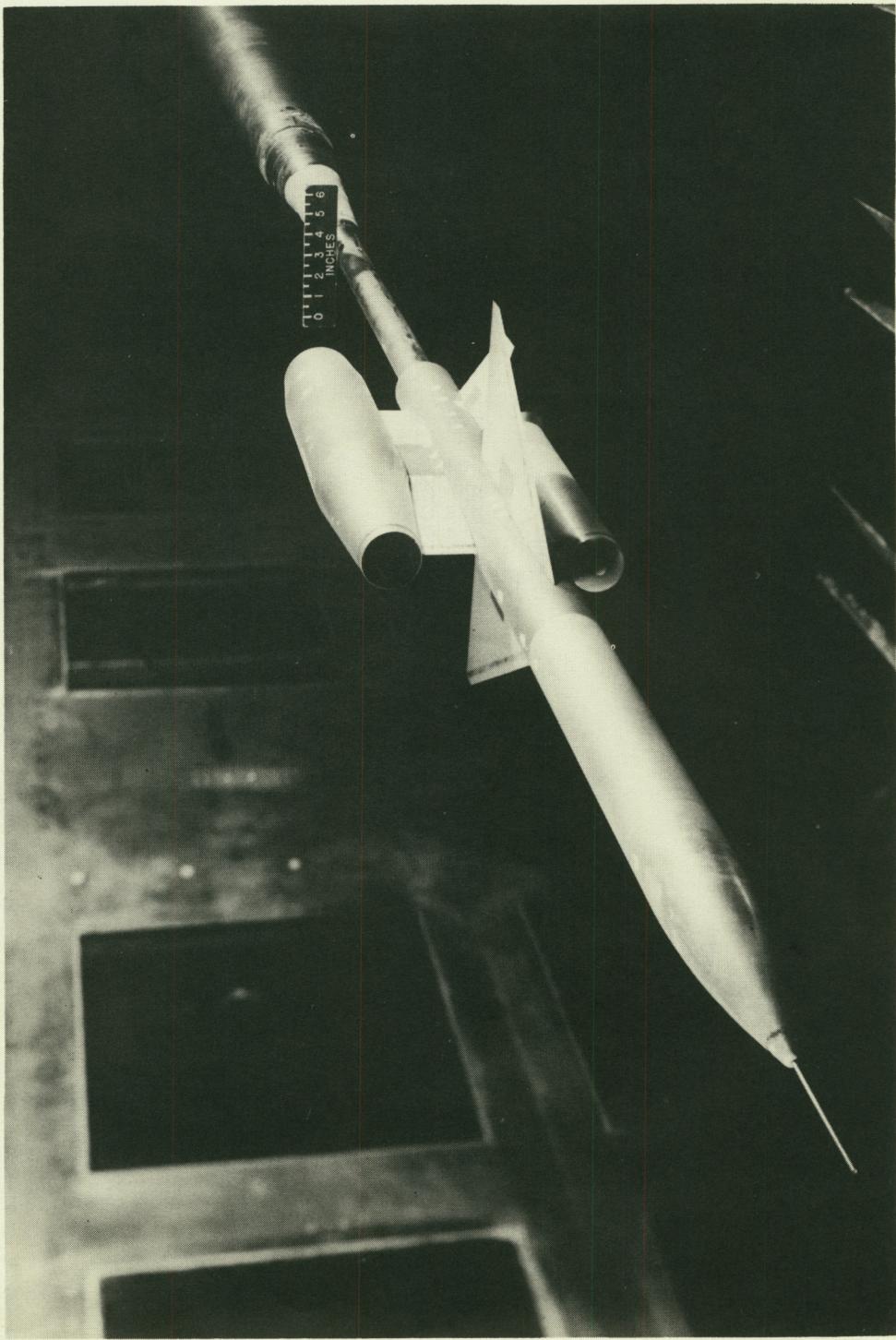


Figure 3.- Photograph of model in Langley 8-foot transonic pressure tunnel. L-61-1381

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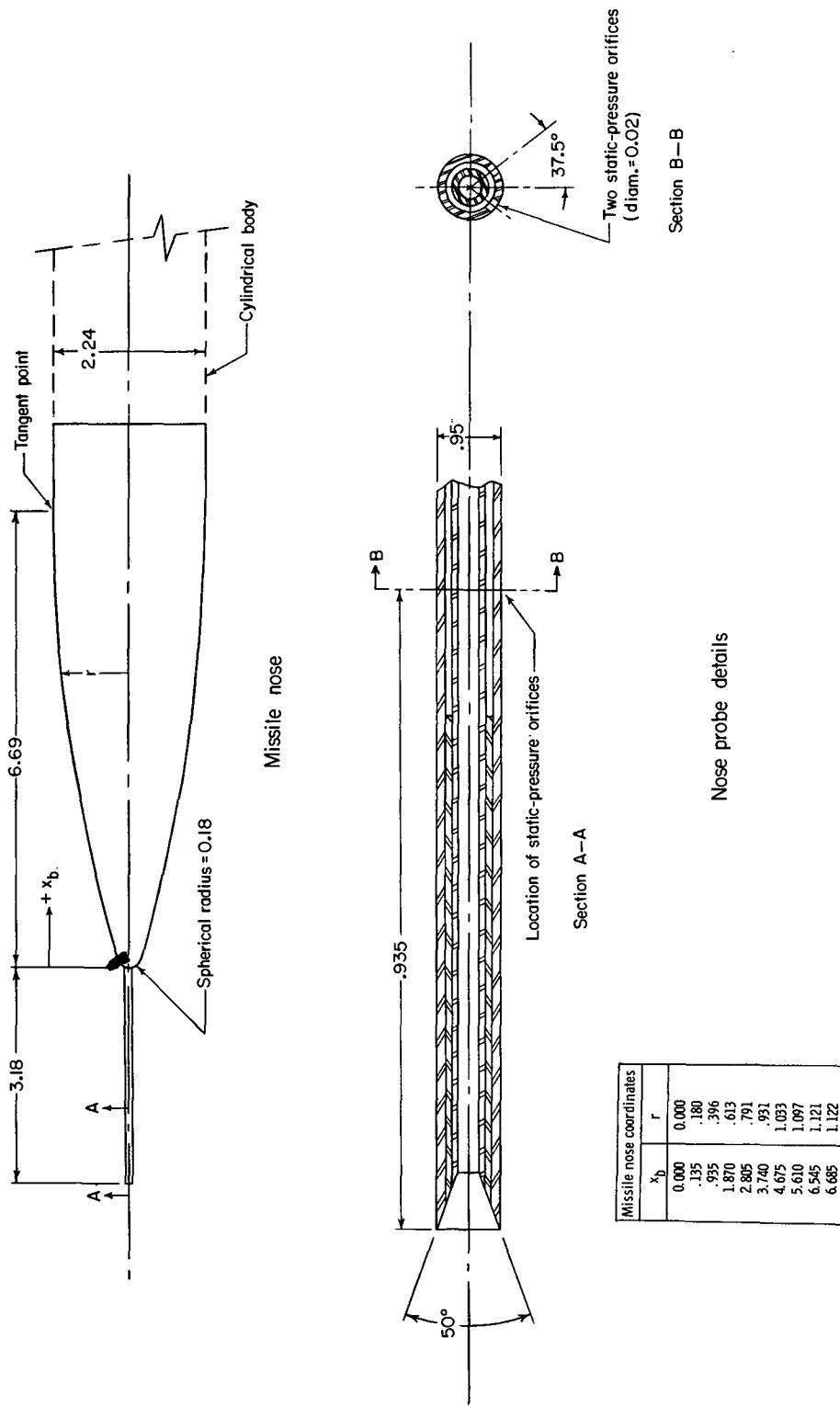


Figure 4.- Geometrical details of missile nose and nose pressure probe. All linear dimensions are in inches.

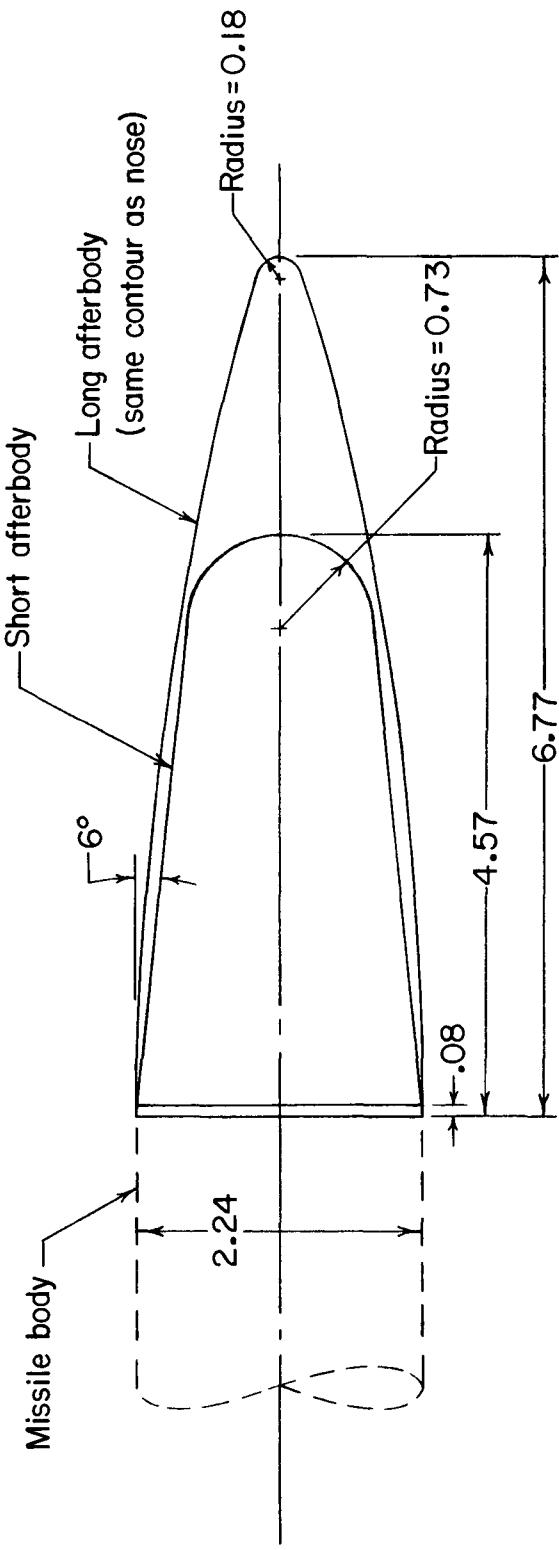


Figure 5.- Geometrical details of missile afterbody closure fairings. All linear dimensions are in inches.

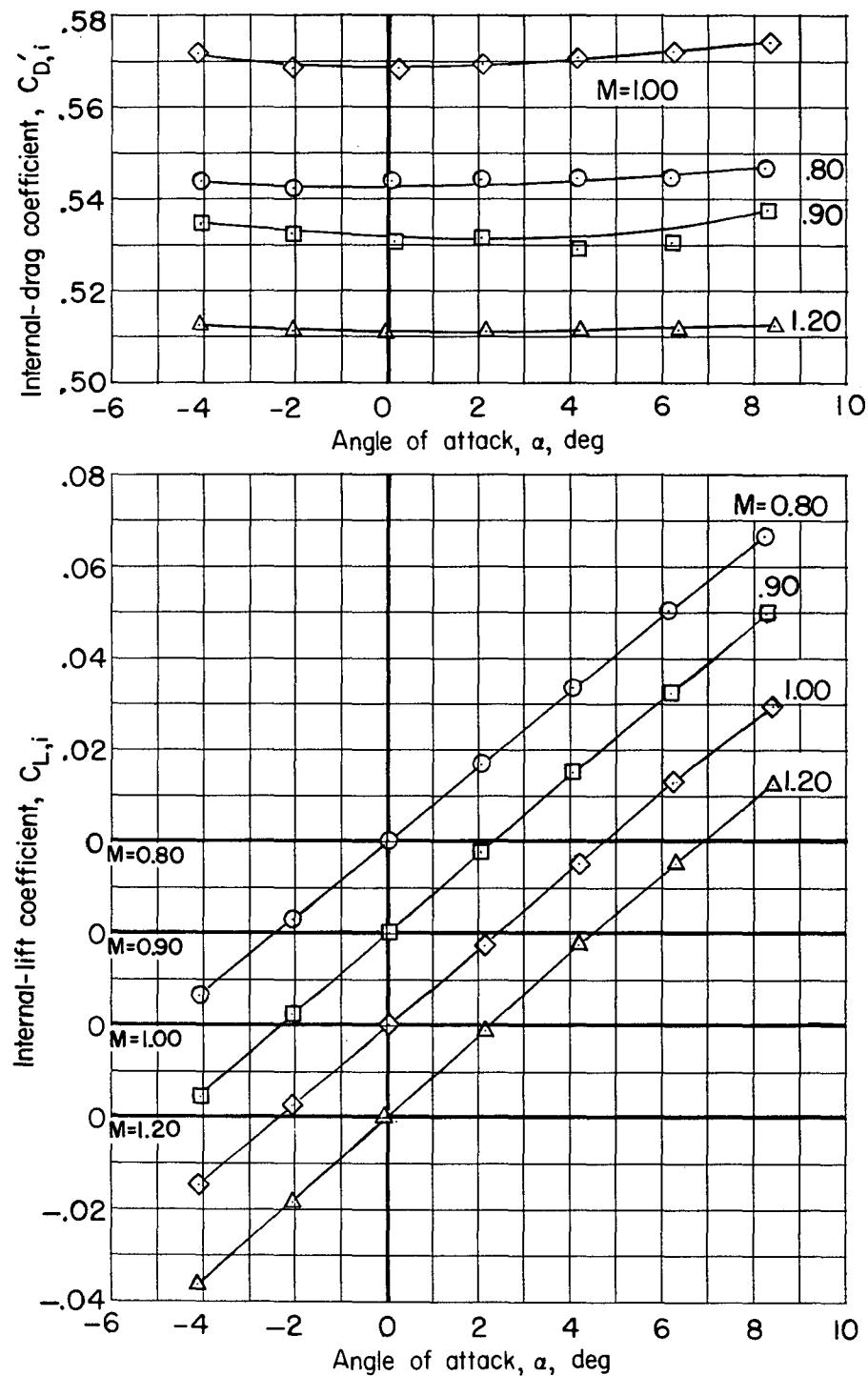


Figure 6.- Force-coefficient increments due to internal flow through engine nacelle. Configuration B + P + N.

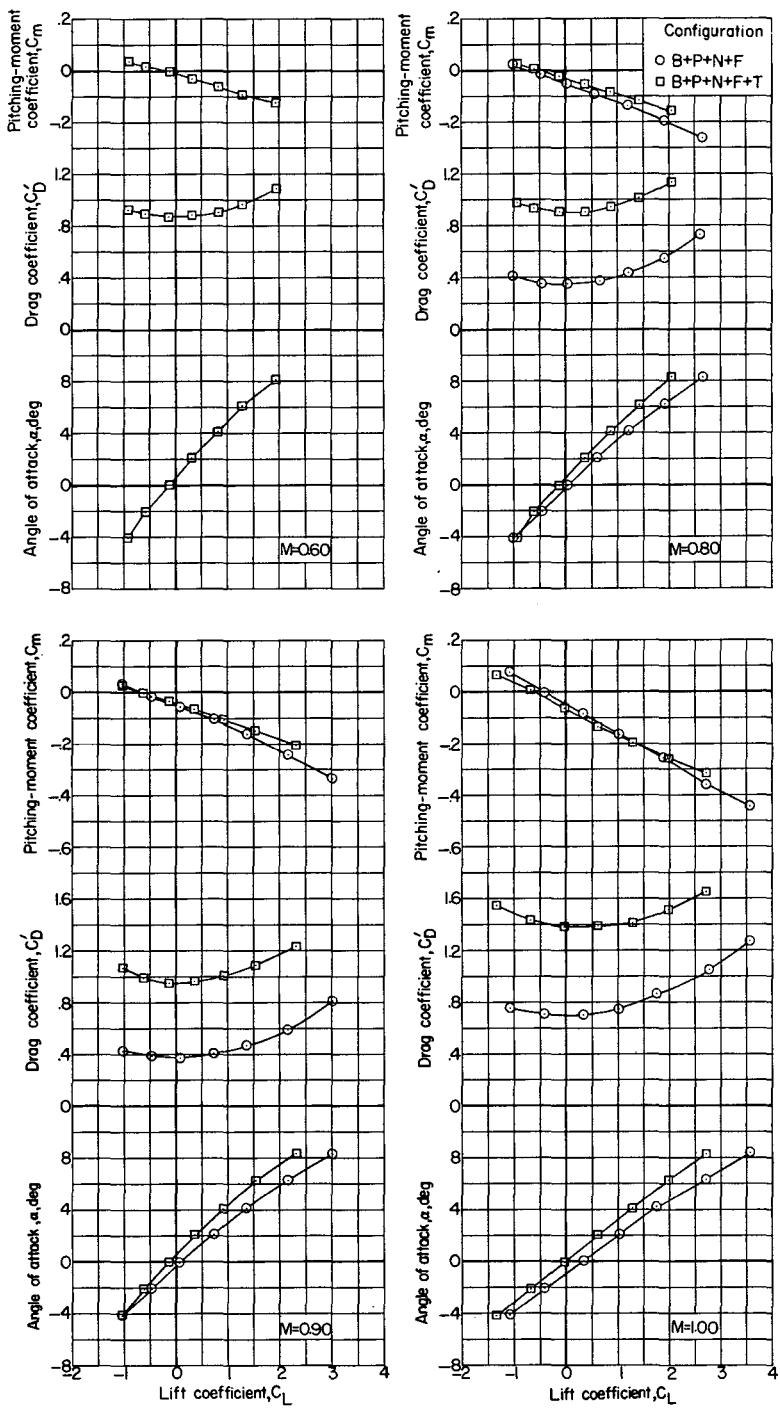
(a) $M = 0.60, 0.80, 0.90$, and 1.00 .

Figure 7.- Longitudinal aerodynamic characteristics of basic configuration with and without booster. Wings off; $\beta = 0^\circ$; $\delta_L = \delta_R = 0^\circ$.

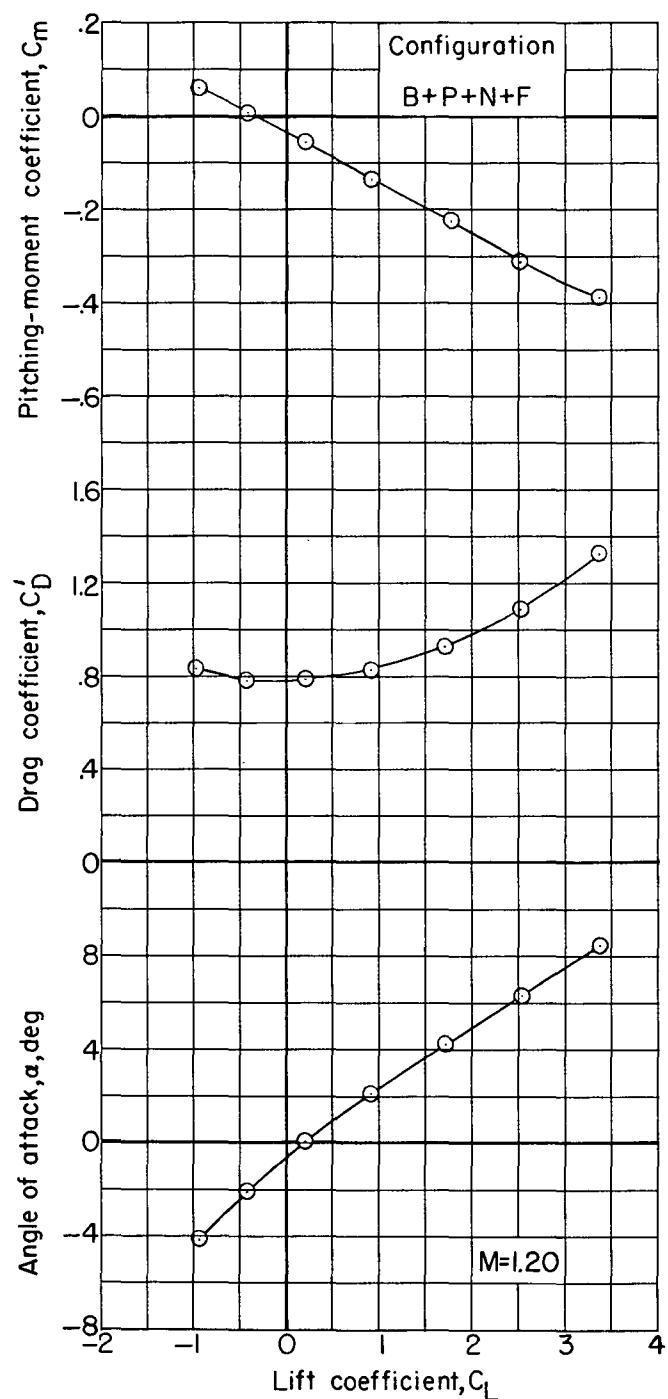
(b) $M = 1.20.$

Figure 7.- Concluded.

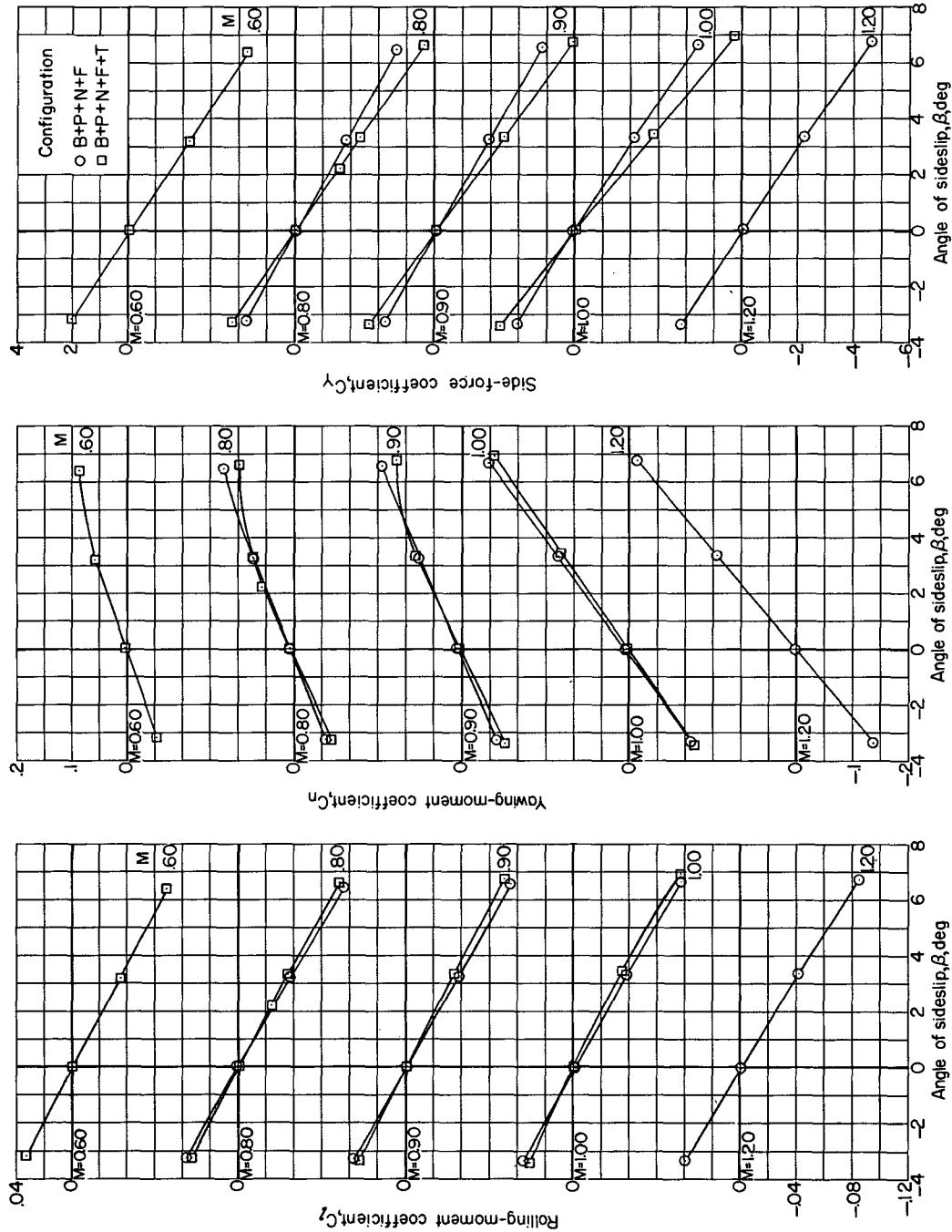


Figure 8.- Lateral aerodynamic characteristics of basic configuration with and without booster. Wings off; $\alpha = 0^\circ$; $\delta_L = \delta_R = 0^\circ$.

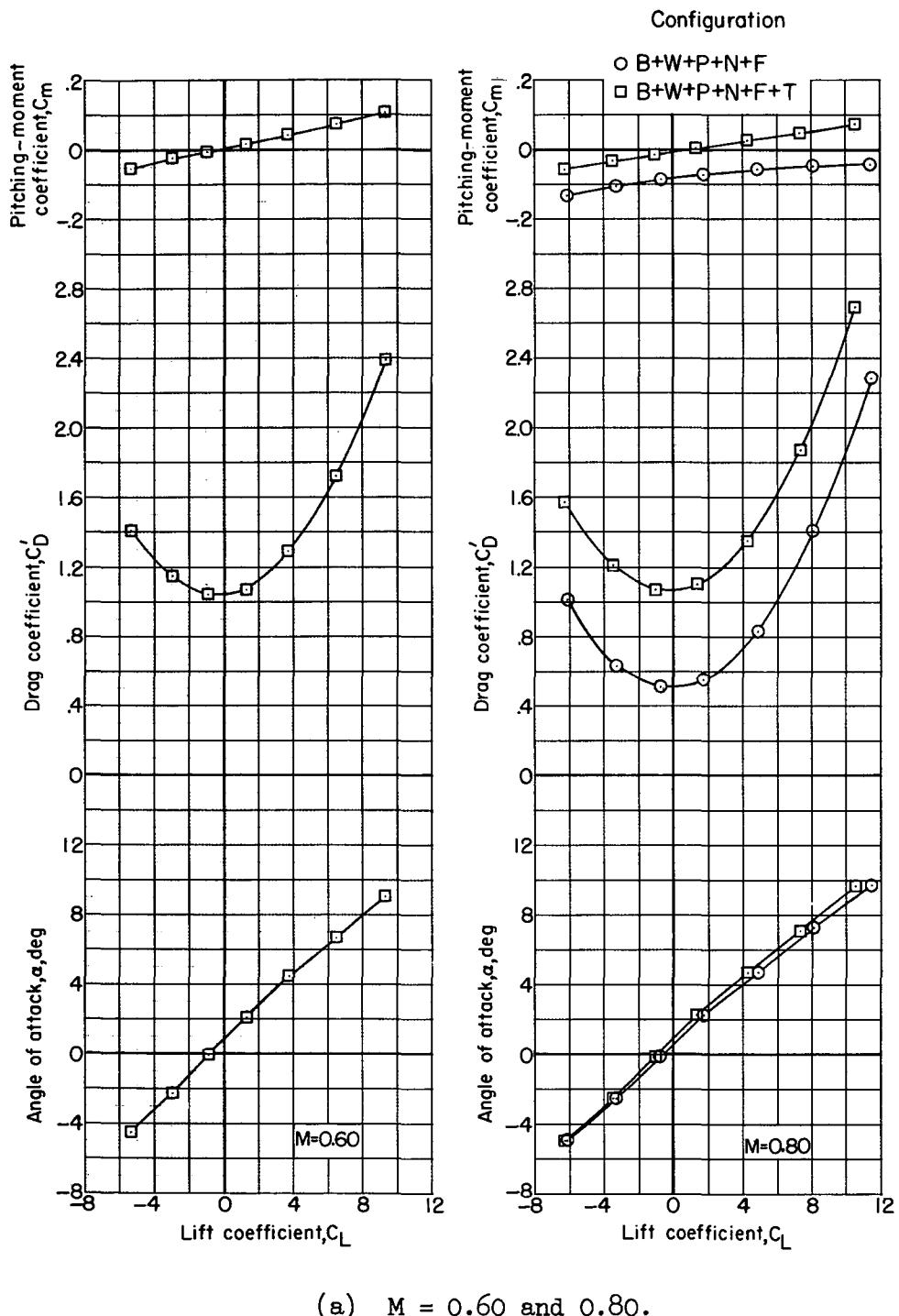
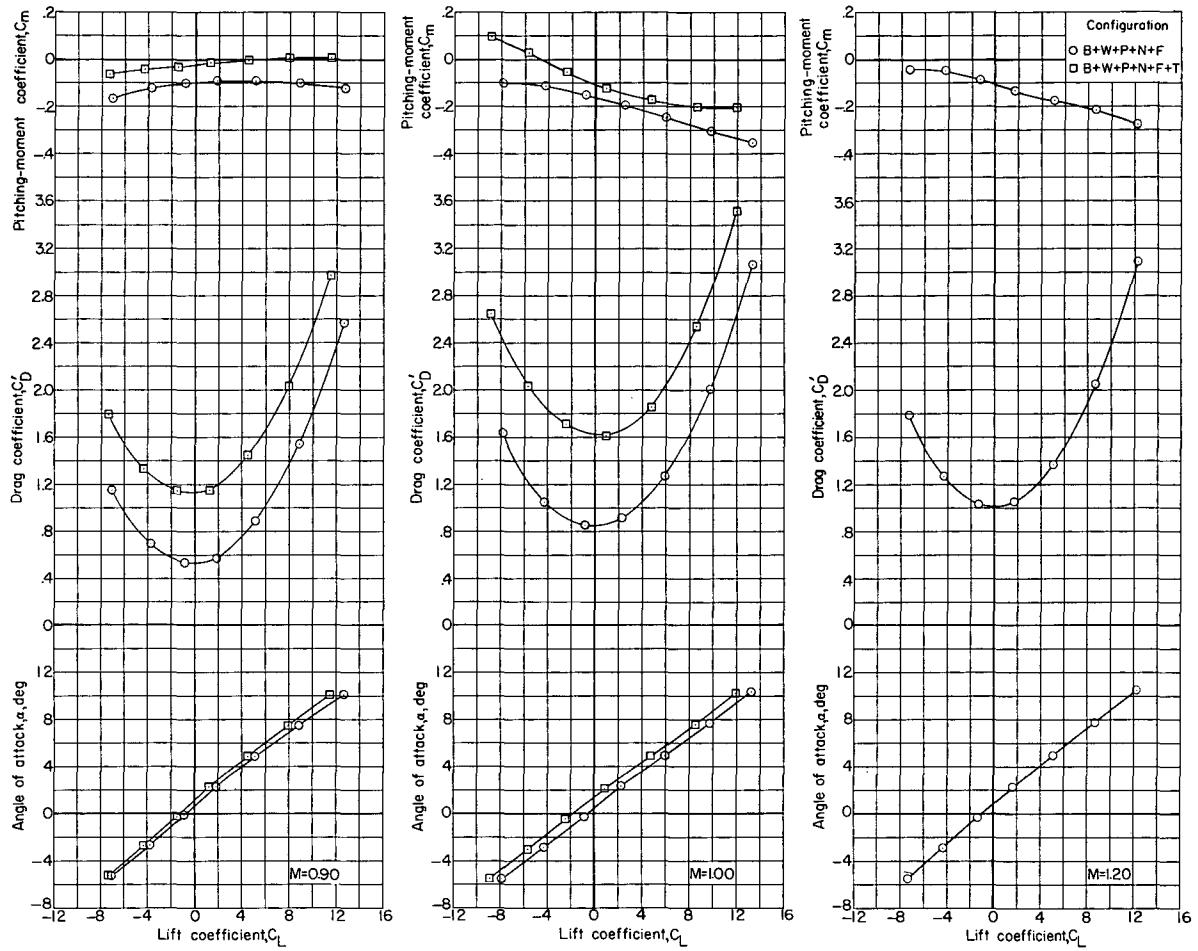


Figure 9.- Longitudinal aerodynamic characteristics of winged configuration with and without booster. $\beta = 0^\circ$; $\delta_L = \delta_R = 0^\circ$.



(b) $M = 0.90$, 1.00 , and 1.20 .

Figure 9.- Concluded.

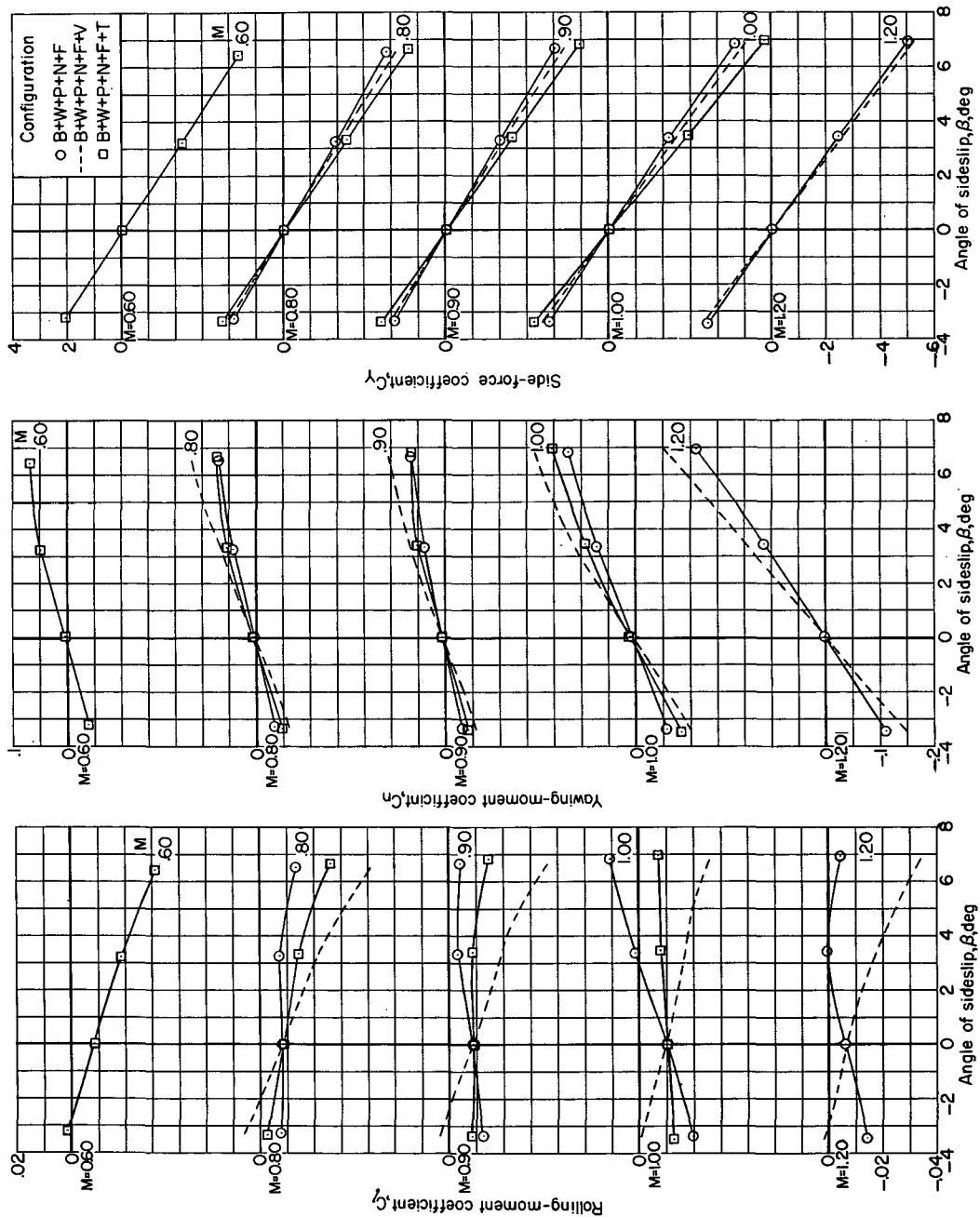


Figure 10.- Lateral aerodynamic characteristics of winged configuration with and without booster or engine-nacelle vertical fin. $\alpha = 0^\circ$; $\delta_L = \delta_R = 0^\circ$.

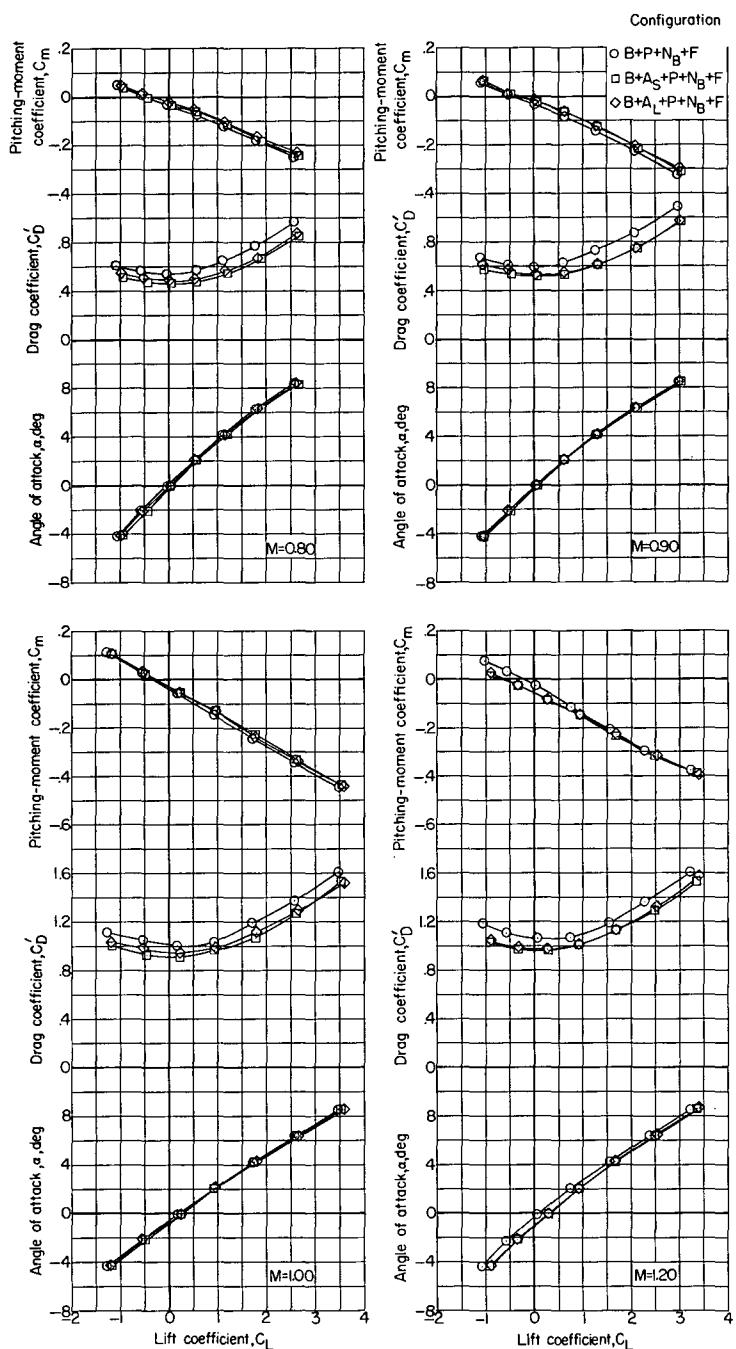
(a) Longitudinal characteristics; $\beta = 0^\circ$.

Figure 11.- Effect of afterbodies on aerodynamic characteristics of basic configuration. Wings off; $\delta_L = \delta_R = 0^\circ$.

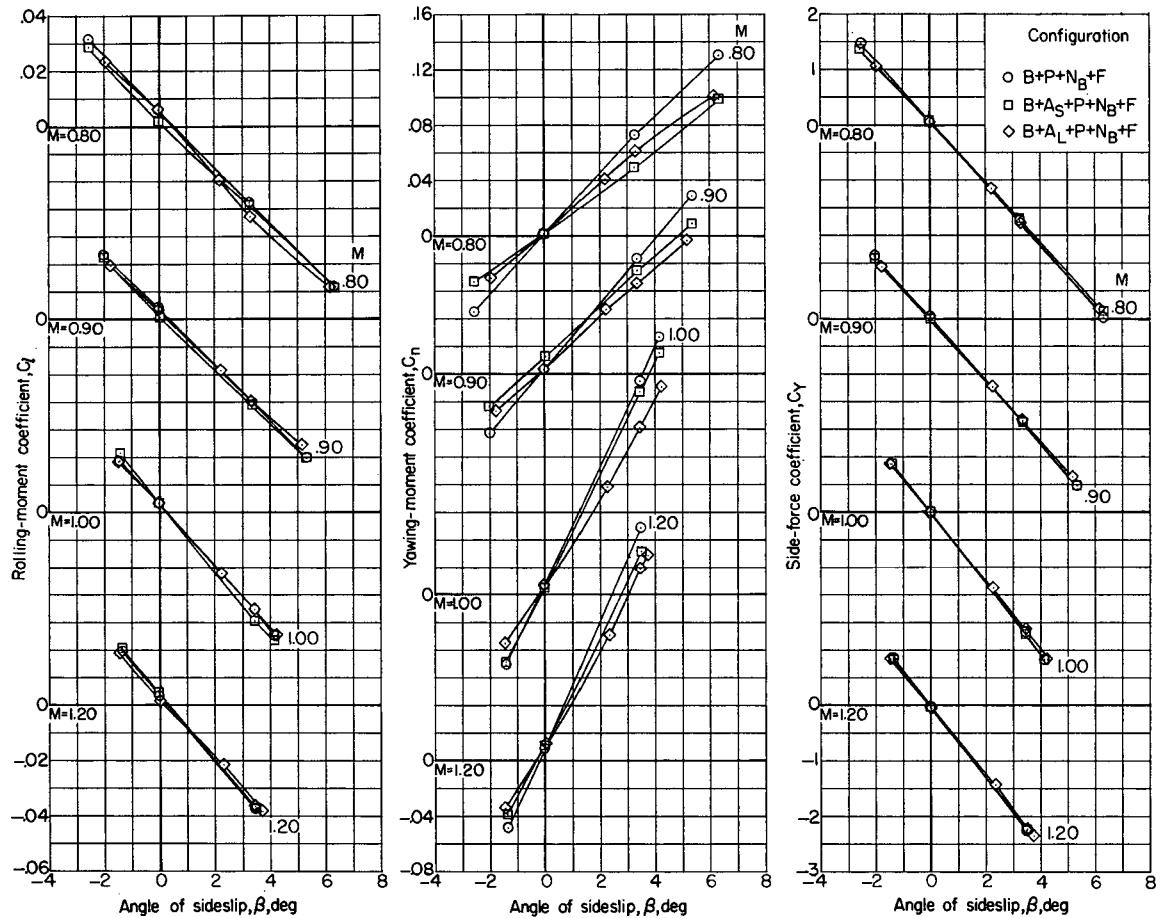
(b) Lateral characteristics; $\alpha = 0^\circ$.

Figure 11.- Concluded.

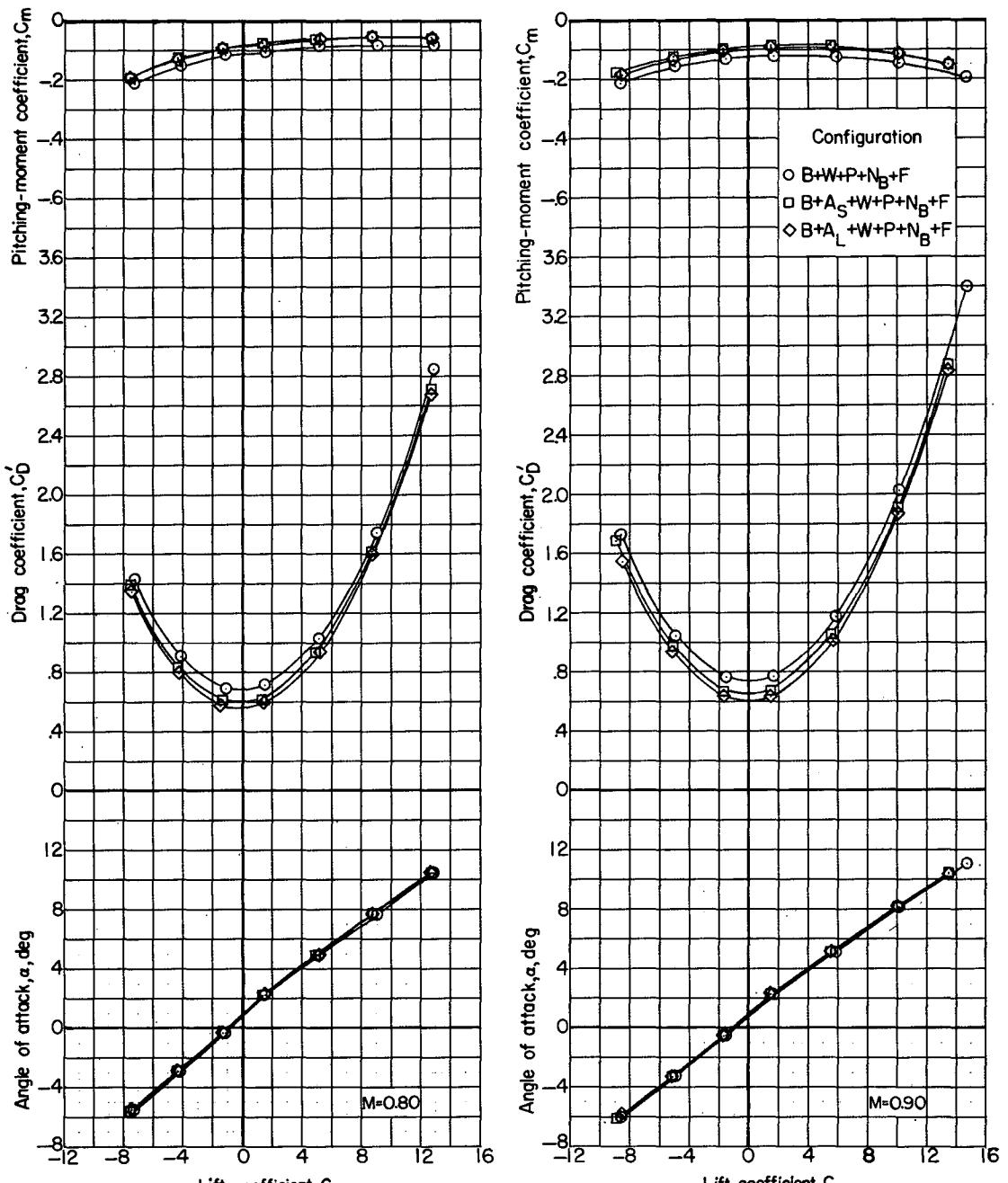
(a) Longitudinal characteristics; $\beta = 0^\circ$.

Figure 12.- Effect of afterbodies on aerodynamic characteristics of winged configuration. $\delta_L = \delta_R = 0^\circ$.

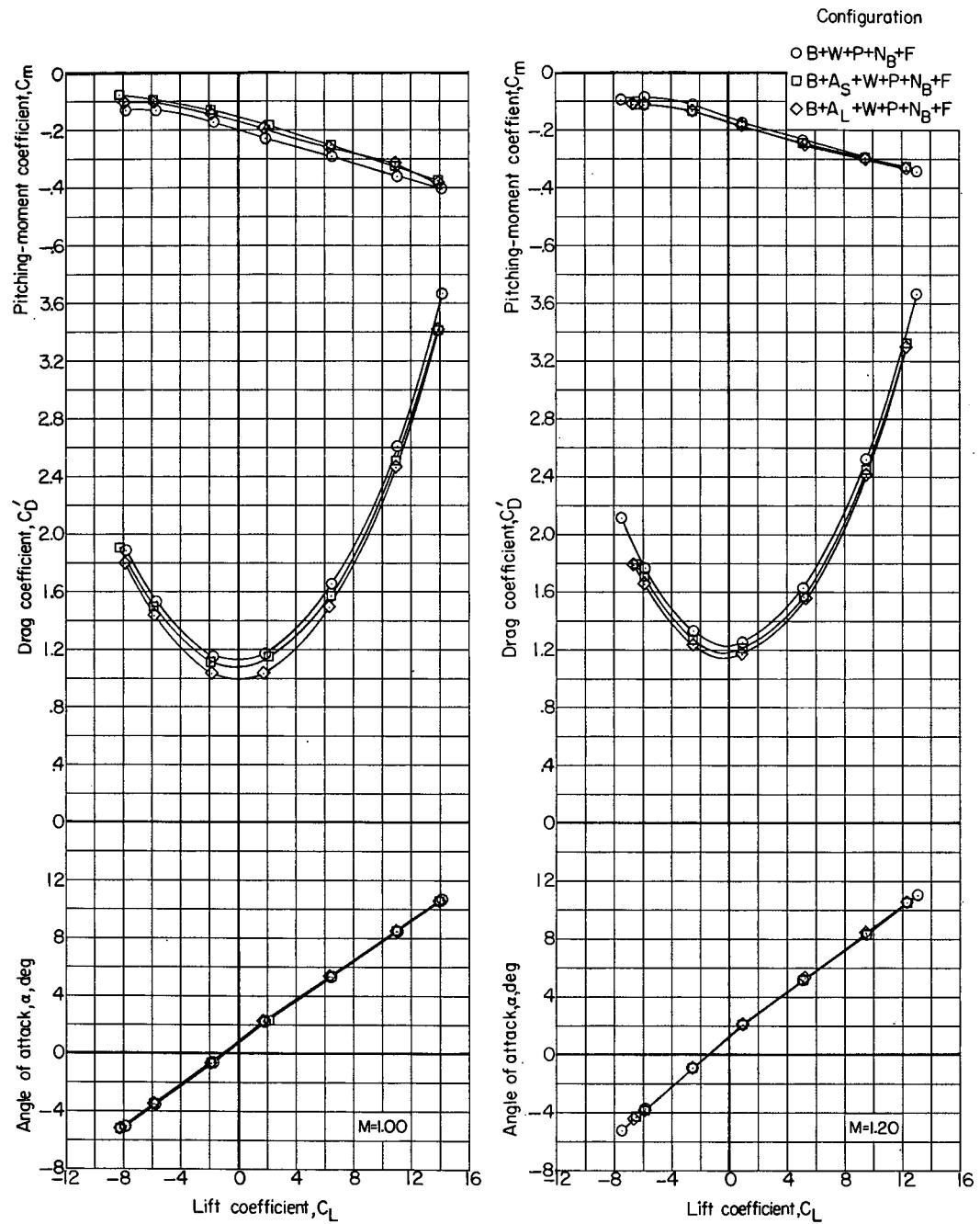
(a) Longitudinal characteristics; $\beta = 0^\circ$. Concluded.

Figure 12.- Continued.

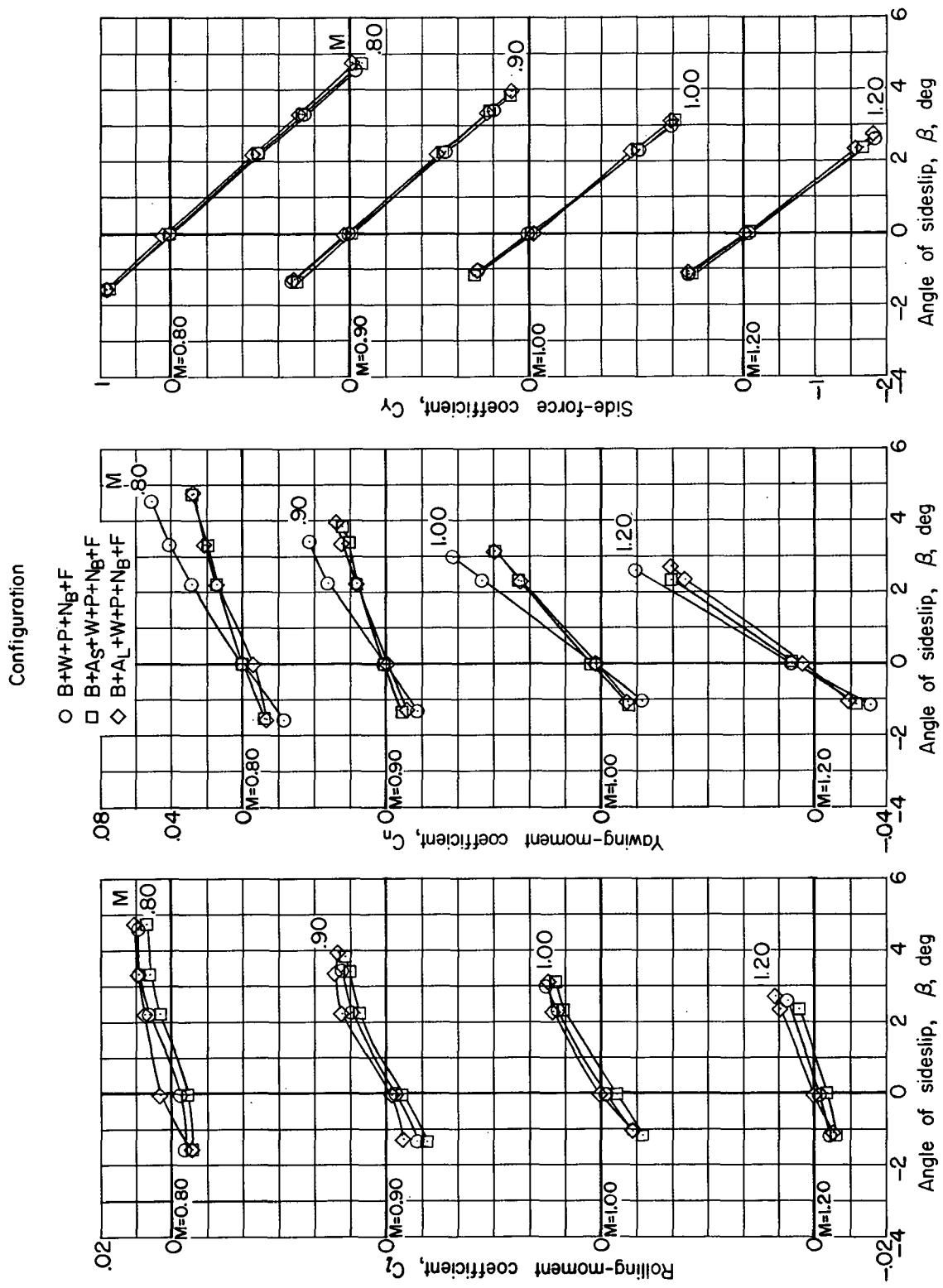
(b) Lateral characteristics; $\alpha = 0^\circ$.

Figure 12.- Concluded.

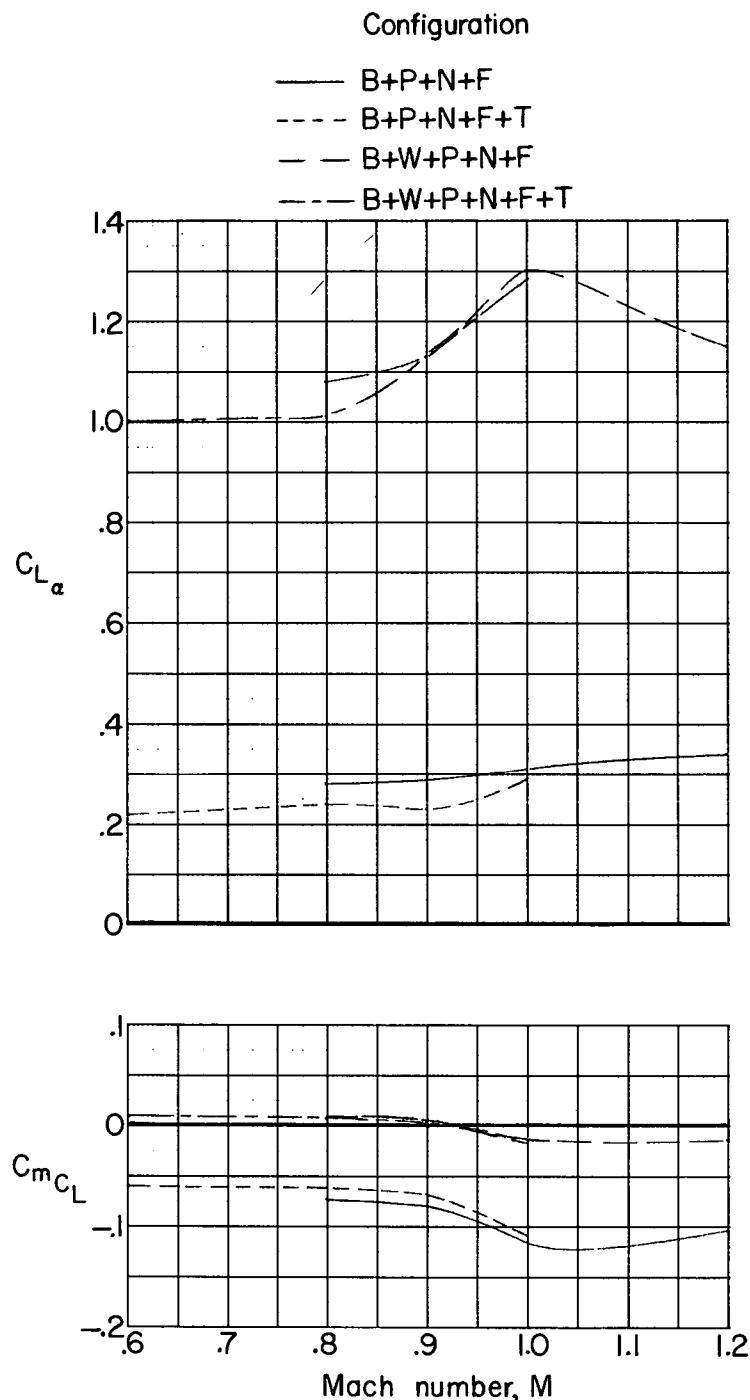


Figure 13.- Variation of lift-curve slope and static-longitudinal-stability parameter (evaluated near $C_L = 0$) with Mach number for model with and without wing and booster. $\beta = 0^\circ$.

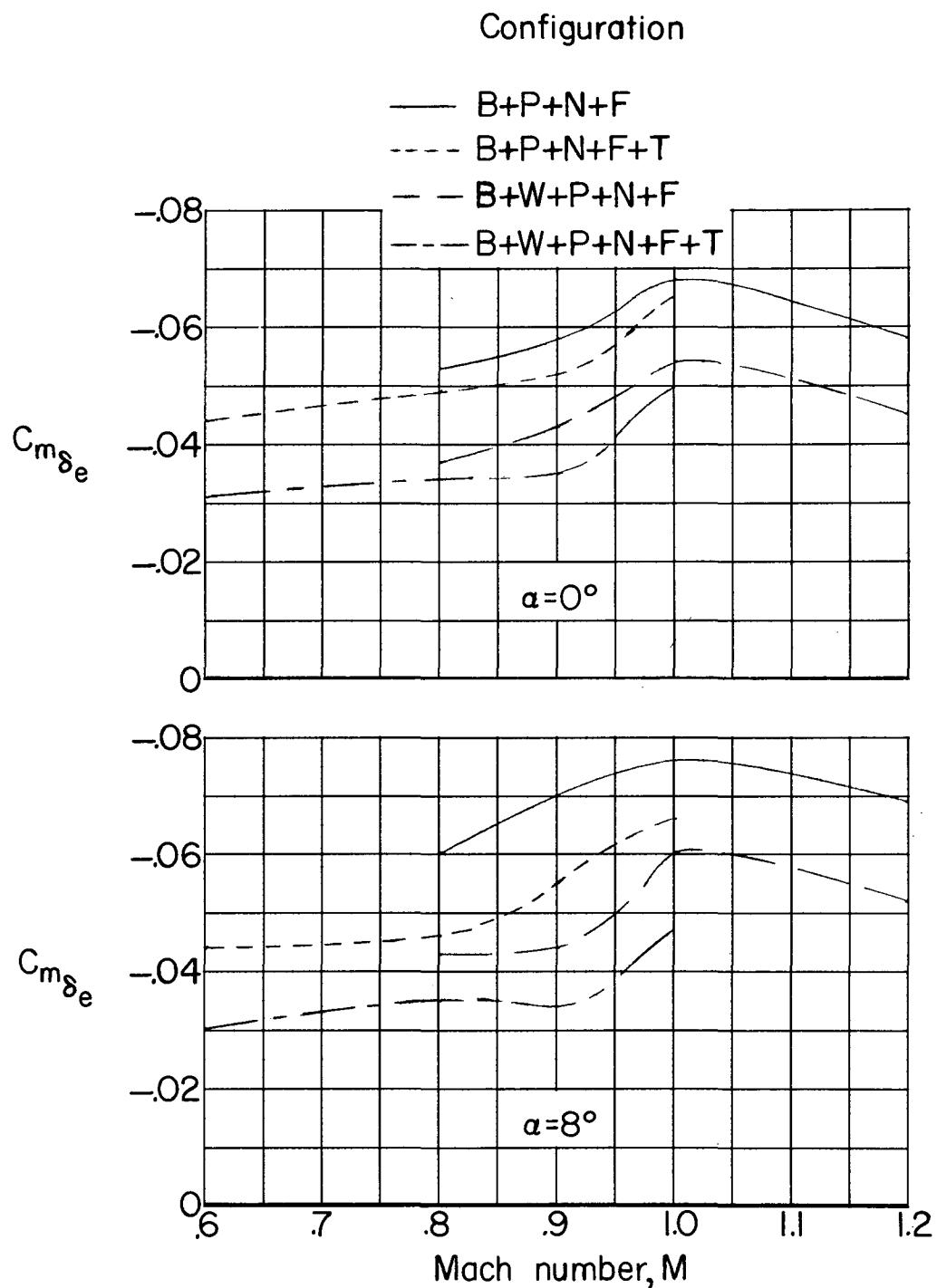


Figure 14.- Variation with Mach number of tail effectiveness in pitch of model with and without wing and booster. $\beta = 0^\circ$.

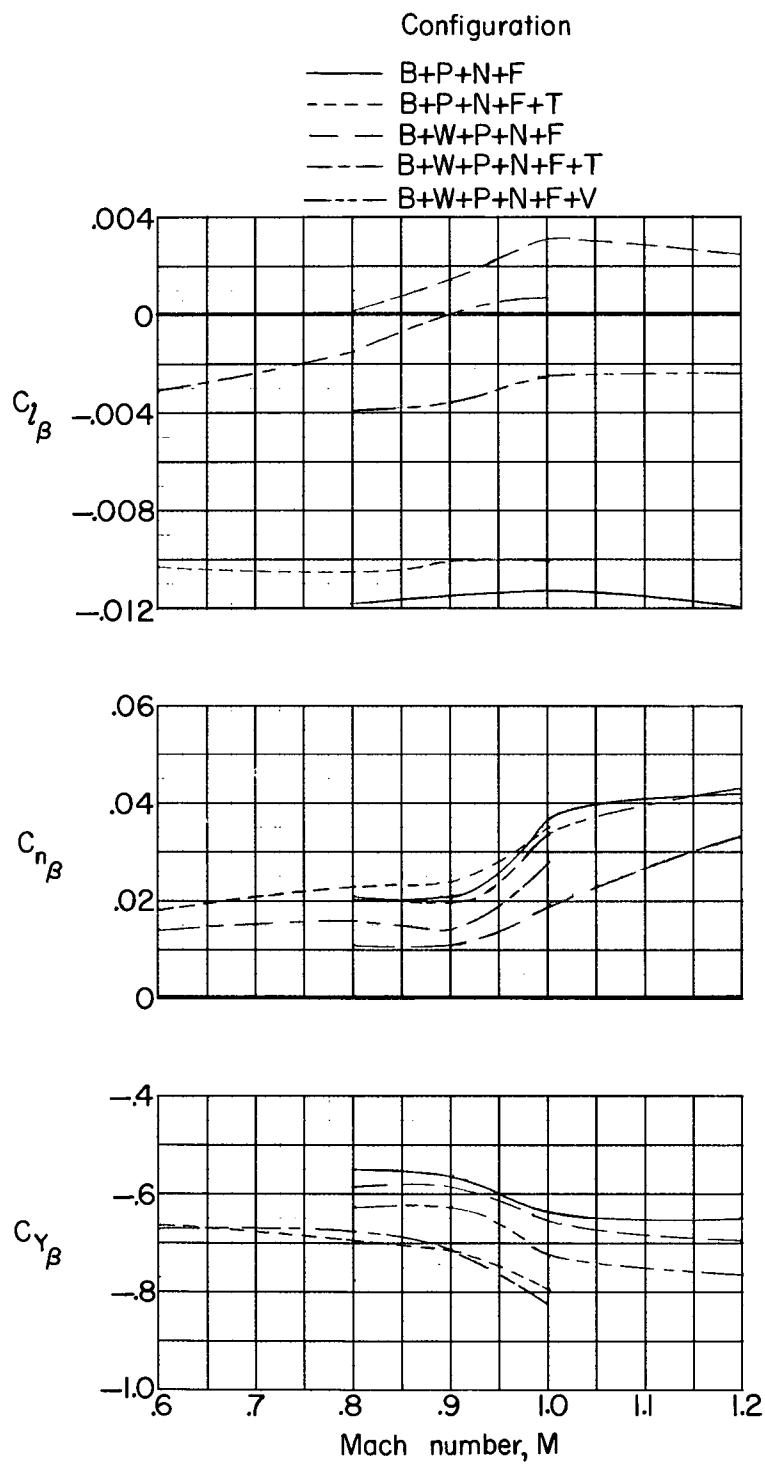


Figure 15.- Variation of lateral-stability derivatives with Mach number for model with and without wing, booster, and vertical fin. $\alpha = 0^\circ$.

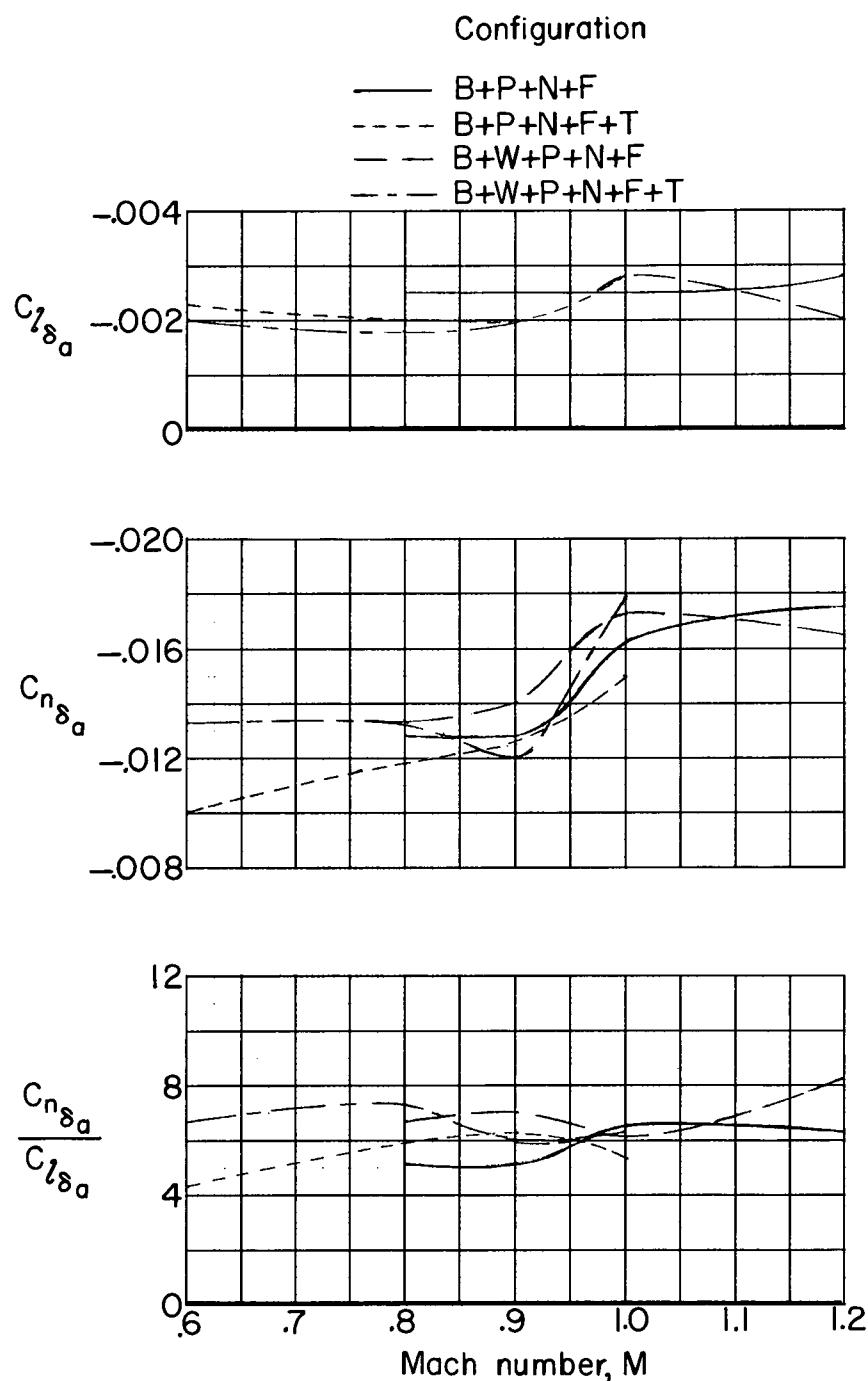


Figure 16.- Variation with Mach number of effectiveness of differentially deflected tails in roll and yaw for model with and without wing and booster. $\alpha = 0^\circ$; $\beta = 0^\circ$.

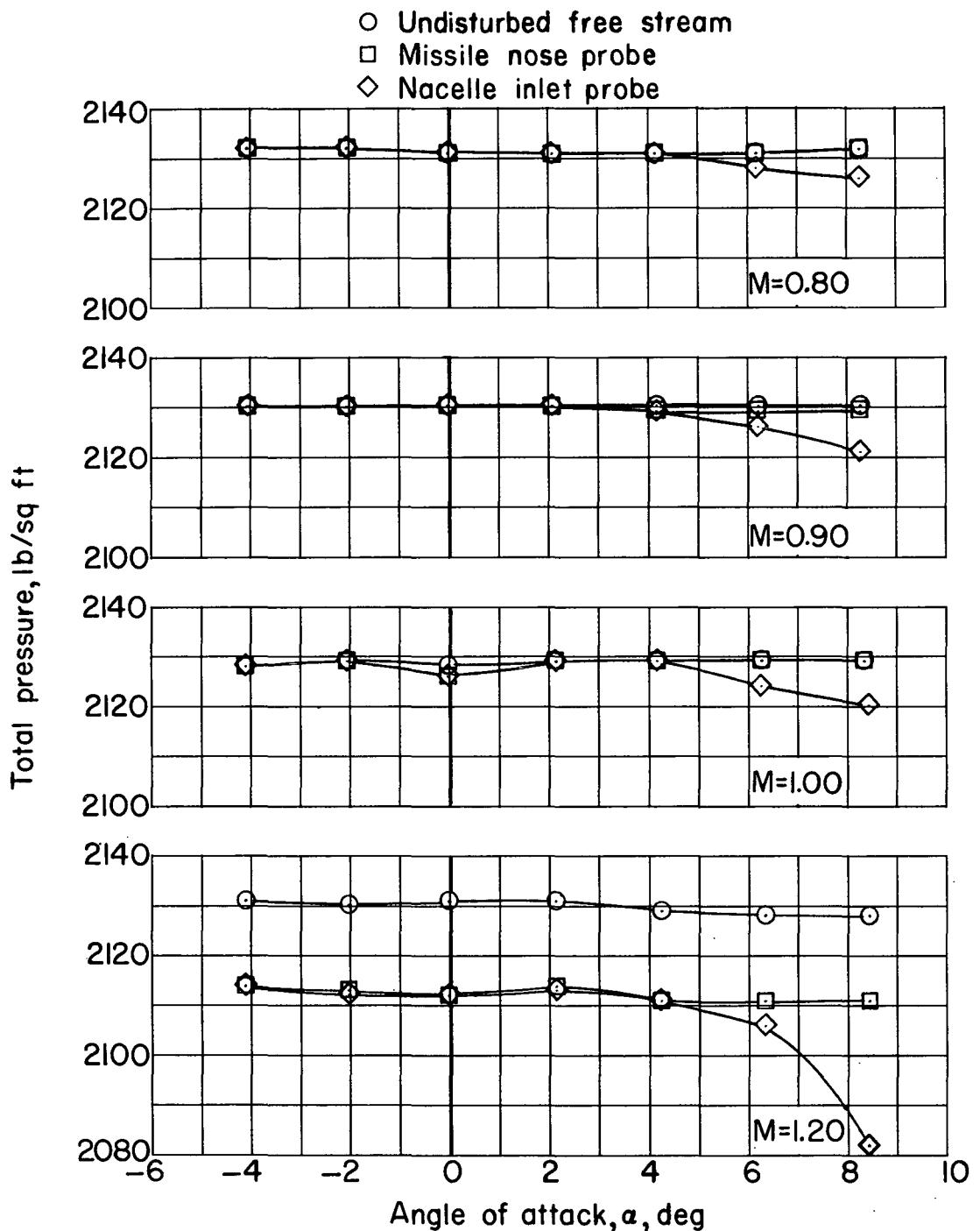


Figure 17.- Comparison of undisturbed free-stream total pressure with that measured by missile nose probe and nacelle inlet probe. Configuration B + P + N.

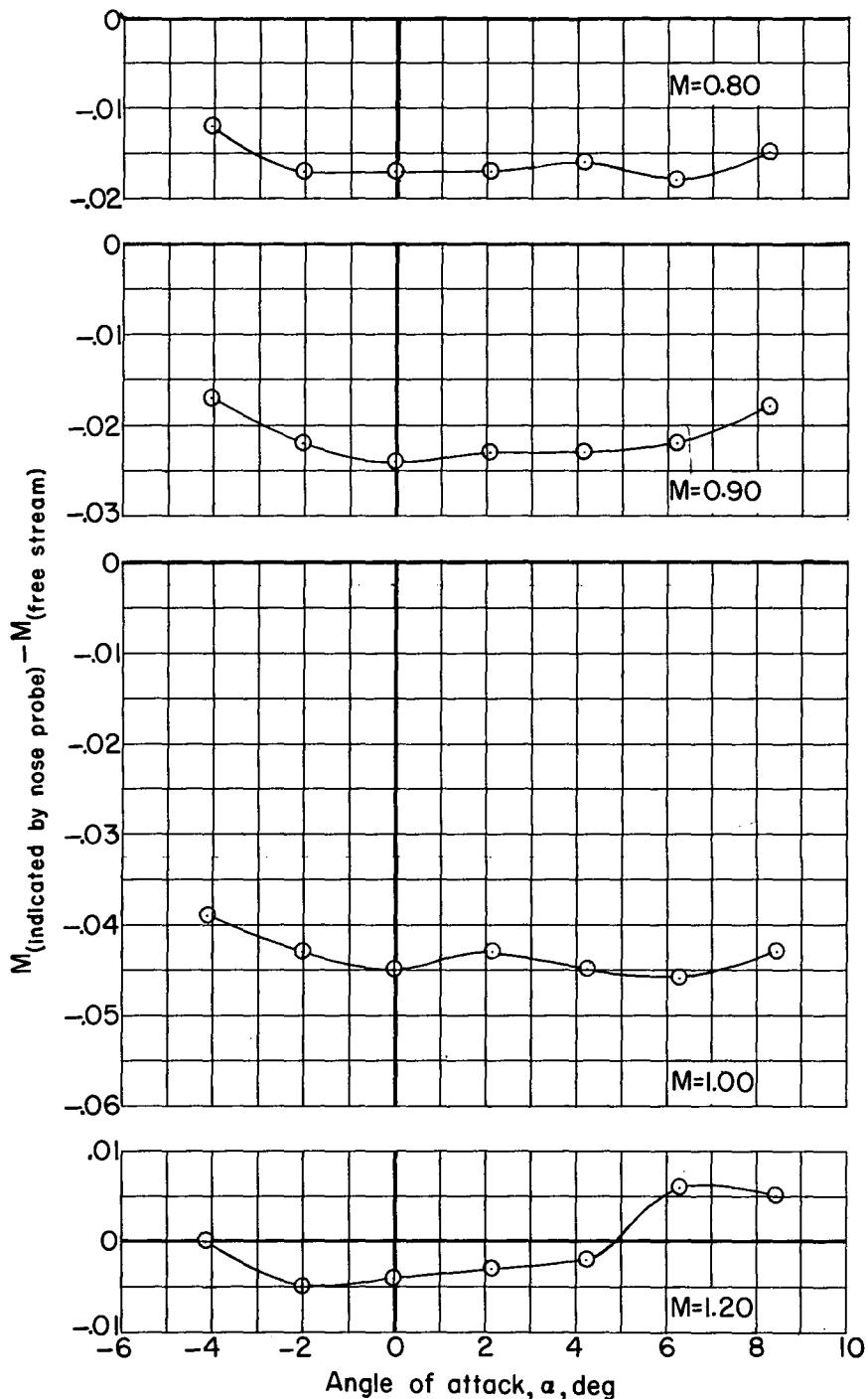


Figure 18.- Error in Mach number indicated by missile nose probe due to position ahead of missile nose. Configuration B + P + N.